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PERSISTENT PUPILLARY MEMBRANE AND CONGENITAL
ECTOPIA LENTISALEXANDER R. CREBBIN, M.D., F.A.C.S.
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The right pupil was obliquely placed in the upper temporal quadrant, its upper margin 1.5 mm. from the chamber angle. The left pupil was somewhat displaced upward. The right lens was luxated slightly in and down, the left lens up and in. Both the phakic and the aphakic portions of the pupils were largely occupied by abundant networks of fibers of persistent pupillary membrane. Slit-lamp appearances are carefully described. (See colored drawings in frontispiece to this issue.)

Some time ago, while my notes on this case were already taken but not whipped into intelligible shape, Fox published his report on "congenital ectopia lentis" (American Journal of Ophthalmology, volume 9, page 257) and said: "The rarity of this condition makes it of interest at all times." I might have hesitated to add my report of lens abnormality if it were not that in my case it is combined with an unusually pronounced persistent pupillary membrane.

The boy observed for the past two years is now eleven years old. He is said to have been born with a "misshapened pupil" in the right eye, but the parents noticed nothing further until he entered school. He must hold the book close to his eyes, and has some difficulty in keeping up with his classes. His father was paralyzed several years ago, but the mother is healthy. He has one older brother (who has hyperopia of 4.50 diopters) and three older sisters whose eyes are normal. There is apparently little pertinent family history. His father's brother has a child two years old who is blind from congenital retinal pigmentary degeneration. No further family history is known.

There is nothing abnormal in the position of the eyes except slight exotropia of the right eye, the eye appearing to deviate from its parallel position. Both corneas show slightly increased convexity. Across both corneas above, there is an opaque ad-

vance of the limbus giving the appearance of slight flattening of the cornea from above.

The right anterior chamber is very deep, especially the lower temporal quadrant, and that part of the upper temporal quadrant in front of the misplaced pupil.

The right pupil is eccentric (undilated it is about 2 by 3 mm.) obliquely placed in the upper temporal quadrant, axis 120°. The upper margin is 1.5 mm. from the angle of the anterior chamber at this point; and the lower margin is about three mm. above the horizontal meridian of the cornea, and 1.5 mm. temporally from the vertical meridian.

The color of the right iris is fairly uniformly olive, except for a 2 by 5 mm. ribbon-like sector of light brown, which starts at the lower pupillary margin, extends downward across the entire iris, and ends at the limbus between five and six o'clock. The axis of this nevoid pigmentation is about fifteen to twenty degrees off that of the axis of the ovoid pupil. The iris is tremulous, "quivers" on movement of the eye in the temporal half, and slightly in the nasal portion. This is particularly noticeable when the eye is quickly abducted.

The left eye presents somewhat the same appearance in shape of cornea, irregularities of anterior chamber, and tremulousness of iris in the temporal half. In the left eye the tremulousness is probably more marked. The

color of the iris is a more uniform olive-drab; the pupil (2 by 2.5 mm.) however, in contrast, is almost in the center vertically, and just above the horizontal meridian, being thus much less displaced from the mathematical center. Both pupils react well to light, and slightly to accommodation.

The right lens is situated (or luxated) in and slightly down; the left lens up and in. Only a portion of the lens can be seen through the dilated pupil, and this, especially at the lens margin, looks slightly cloudy (due to anterior capsular reflection).

The right pupil dilates obliquely oval. Most of the pupil is in the upper temporal quadrant, but the greatest dilatation is toward the center. The left pupil dilates fairly round, slightly above the horizontal meridian and slightly flattened: dimensions, 5 mm. wide, 4.5 mm. vertically.

With focal illumination, the right eye shows a few reticular lace-like threads at the nasal border of the pupil. The margin of the lens can be seen about midway across the dilated pupil, showing its displacement downward and inward. In the left eye, within one mm. of the temporal margin of the pupil can be seen the curvature of the lens (arc from about three o'clock to six o'clock) showing that the lens is misplaced upward and slightly nasally.

(Note: The right lens is luxated down and nasally, the left lens up and nasally.)

Comparative size of phakic and aphakic portions of pupils: With moderate light, the lens portion in the right eye is about one-fifth of the whole pupillary area, while in the left eye the lens is behind at least two-thirds of the pupil.

Vision, right eye 6/60 plus, left eye 6/60. With mydriasis, the refraction of the right eye in the right aphakic portion of the pupil requires +12 sphere, that of the phakic portion -5 sphere -1 cylinder, axis 75°. The

left eye is approximately the same. Lenses do not improve vision.

The right eye sees Jaeger no. 2 at about three inches, but it is necessary to turn the head to the left and place the print a bit to the right side of the eye. The left eye also sees Jaeger no. 2 or better at five to six inches straight ahead, i.e. in the normal position. When both eyes are open, the patient uses only his left eye in reading (and also for distance vision). This is shown by his near vision not being interfered with by covering the right eye.

The fundus is seen principally in the region of the disc, and is best seen through the aphakic portion of the pupil (with +12 sphere). The disc and vessels are negative for pathology. Seen through the lens (with -5 sphere) the cloudy appearance of the media prevents a clear view. The left eyeground is not seen so readily as the right, but is apparently negative as to gross pathological changes.

Biomicroscopy, with dilated pupils: Right eye: Arising from the lesser circle of the iris there is a cobweb-like membrane which follows the shape of the pupil on the temporal half and varies in width from one to two mm. This cobweb appearance is especially evidenced in that portion of the pupil which is aphakic. Except for a few strands, like the end ropes of a hammock, which are along the upper median portion of the pupil (and less so along the lower) and are directed toward the superior portion of the membrane, and except for some fibers of a reticular character in the far nasal portion of the pupil, there is not the definite veil-like membrane in that portion of the pupil immediately in front of the lens. In other words, the membrane itself has an irregular hole in it corresponding to about the size and shape of the undilated pupil. That portion of the membrane adjacent to this opening lacks the reticular appearance of the peripheral part, and somewhat resembles in appearance fine vitreous.

The painting (see frontispiece) shows the fibers which are immediately anterior to the lens (above and below) as more or less reticular. This is not correct. They should be shown more string-like, and resembling somewhat the supporting ropes of a hammock. In fact the entire membrane may be likened to a hammock, the two ends of which were held together and swung in the air, and thereby bellied out. Of course, the analogy would not include depth, but just the flat surface as would be seen in a photograph.

Through the pupil can be seen the dislocated lens occupying the nasal half. Temporally from it can be seen several bundles of the fibers of the suspensory ligament inserted back of the sharp-edged periphery of the lens. These are shown in the painting at the upper edge of the lens. There is an absence of these fibers in the remainder of that arc of the exposed edge of the lens. The lens is slightly opaque, like a piece of ice frozen from slightly turbid water.

In the aphakic part of the pupil, the vitreous can be studied. Strands of it seem a bit more opaque than those seen in the normal eye, and can be seen projecting forward to the posterior portion of the pupillary membrane. It can not be determined whether there is any attachment between the two, but there appears to be, and in fact at the final examination this was recorded as positive.

The undulating movement of the vitreous is communicated to the free (central) edges of the membrane. A few of the supporting strands of the vitreous disappear under the pupillary membrane, and seem attached to it posteriorly.

The vitreous can be seen also through the lens itself. The vitreous shows no granular deposits, as have been reported in other cases; but the pupillary membrane, in its peripheral portion (i.e. nearest its attachment to the iris), has deposited in the reticulæ fine brown pigment undoubtedly of iridic origin.

Left eye: Remains of pupillary membrane are present, but are more delicate and less easy to see. On the nasal side, it arises from the inner circle of the iris, but in the lower temporal quadrant it appears fixed half way between the pupillary border and the periphery. There is a hole in the membrane corresponding to the portion of the pupil over the lens (as in the right eye).

In the left eye, it is the lower temporal arc of the lens that is seen. At about two-thirty o'clock there is a bundle of fibers of the suspensory ligament (as seen in the right eye), but along from three-thirty to five o'clock there are two or three loose twisted threads hanging freely from the lens margin. These are somewhat thicker than the attached fibers. Apparently these too are fibers of the ligament, broken and hypertrophied; or is it possible the distal ends were never attached?

Note: The above biomicroscopy is with dilated pupils, hence the pupillary membrane is somewhat stretched out and flattened. Details are thus better seen. But the membrane was also studied without mydriasis. It was shown to be more freely movable, with an undulating wave-like motion. It projected more forward into the anterior chamber in its delicate cobweb-like structure, and reminded one of the top of a pouch gaping open, and gathered up as if controlled by a "purse string".

Conclusions

This case is of rare interest not only because of the lens malposition but because of the extensive remains of a pupillary membrane, both congenital in origin.

The lenses are asymmetrically placed in peculiar positions, and because of this there is left the gap between zonule and lens margin through which may be seen some fibers of the suspensory ligament. These fibers (like taut fine threads) are attached to the lens periphery, but do not en-

ter into the lens itself (as in Fox's case).

The lens is really not luxated, since fibers of the ligament are still attached, though probably attenuated. But, as has been suggested, the lens has not grown sufficiently to occupy the space provided for it (agreeing with Fox and others). The lens is not movable. Treacher Collins' conception of suspensory ligament formation explains this. In the early development of the lens, we are told, it virtually fills the secondary vesicle, which later by its rapid growth draws away from the lens. During the stage of contact of the lens equator with the ciliary region, adhesions are formed

which when these structures separate are drawn out into fibers which ultimately become the fibers of the suspensory ligament. Now anything that would interfere with this preliminary contact would produce this defect. Such interference could be brought about by partial persistence of that portion of the intruding mesoblast which passes forward in all directions around the lens equator to join with the mesoblast growing in anteriorly to form the capsulopupillary membrane. Wherever a strand of this tissue persisted, development of the suspensory ligament would fail.

Maison Blanche

INTRACAPSULAR EXTRACTION WITHOUT IRIDECTOMY

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A series of twenty-five intracapsular extractions, done in the main by the technique of Henry Smith, but without iridectomy, has led the author to regard this modification as relatively safe, while cosmetic and functional results were also satisfactory. A speculum is used. Complete anesthesia, preliminary training of the patient, and absence of post-operative meddling are insisted upon. Presented by invitation before the Minnesota Academy of Ophthalmology and Otolaryngology, May 11, 1928.

The goal of the cataract operator is a round and clear pupil, which, in the presence of a normally functioning visual mechanism, offers the greatest probability of a perfect visual result. After the trauma connected with the operation is healed, the operative procedure that has accomplished this result comes near to spelling finality in perfect operative technique. Without entering into a discussion as to the validity of the claims of its proponents, or the attendant dangers urged by its opponents, the intracapsular method, it must be admitted, more nearly possesses the characteristics of a perfect cataract operation than any other device.

The intracapsular method of extraction, as at present carried out, is the resultant of a gradual series of simplifications of the older technique. A further simplification of the intra-

capsular method may be found in the elimination of iridectomy. The omission of iridectomy as one of the few steps in the intracapsular technique is not new. It is probable that many of the earlier operators who delivered the lens in its capsule either did so accidentally, or had not bettered the older technique, and therefore were not encouraged to continue the procedure. It is also to be observed that among these earlier operators some expelled the lens through an un mutilated iris, while others performed a large iridectomy. In somewhat later times, as the intracapsular method has become familiar to a number of operators, a small iridectomy has constituted one of the several steps in this method of extraction.

Davel in his writings quotes a method of cataract extraction practiced by Sharp, an English surgeon

born in Jamaica. After making a downward incision, Sharp says, "you press gently with your thumb against the inferior part of the globe of the eye in order to expel the cataract, and the operation is finished according to the different circumstances, as in the manner proposed by Monsieur Daviel." Richter, a little later, proposed extraction in the capsule, by passing the point of a round needle into the lens after it had impaled the sclerotic. After he had moved the lens to break the zonular attachments, it was pushed into the anterior chamber.

It was not until the year 1845 that Christiansen conceived the steps of the modern intracapsular procedure. This author, in describing his method, said: "The anterior capsule is not incised, and the extraction as thus performed causes neither wound nor hernia of the iris." It was Pagenstecher who made the most important contribution to this operation. This author presumed that the capsule was firmer than its attachment with the zonule of Zinn. He observed that acuteness of vision was greater after this operation than after any other. He made a deep, large iridectomy, which, he assumed, avoided the imminence of iris prolapse. From this time until considerably later, there was a gradually increasing number of operators who experimented with and developed this method, but in practically all these instances iridectomy, varying in character, constituted one of the steps.

Our most important contribution to the perfection of operative technique has come from India. Mulroney, an officer in the East Indian Medical Service, practiced removal of the cataract in its capsule as a routine performance. This surgeon, situated at Amritsar in the Punjab, was the first who began, as a routine procedure, to extract the cataract in its capsule by external manipulation, and after a method entirely his own. Sad to say, he left no written line upon the subject of his operation for publica-

tion. Fortunately, one of his assistants has fully described his perfected operative technique. This constitutes one of the most important of all papers written upon the subject of the intracapsular operation since the days of Pagenstecher.

"The incision is made by introducing the point of the linear knife into the corneoscleral junction on the outer side of the globe, on a level with the lower margin of the undilated pupil, the counteropening being made a little lower on the inner side, and then the incision is completed in the usual way through the cornea. Pressure is now applied with a flat scoop or a strabismus hook at the upper border of the cornea, till the edge of the lens presents itself into the incision, and then counterpressure is applied by a curette below the incision; by this process, the iris, which is often in the way, recedes, and the lens gradually projects, and when nearly half of it is out of the wound the pressure is withdrawn and the speculum removed. After this, the pressure with the thumb is reapplied to the globe through the upper lid and counterpressure applied to the ball of the eye below the wound on the sclerotic coat, with the scoop; the pressure is very gently and carefully regulated, till two-thirds of the lens comes out of the wound. Pressure is now again removed, and the patient is directed to close the eye, and look towards his feet, when, in most of the cases, the lens slips out, and the iris contracts, the edges of the wound become adjusted, and escape of vitreous prevented. In cases where expulsion of the lens is retarded, it is completed by the aid of a scoop or a pair of iris forceps. In those cases where the soft cortical substance of the lens comes out, but a hard nucleus remains behind, the capsule is very liable to rupture, unless tact and patience are exercised, till the nucleus also protrudes."

Later, Colonel Smith, also an officer in the medical service in India, became interested in Mulroney's op-

eration, and his name has become almost synonymous with this method of cataract extraction. Smith had been doing the regular operation, but, after seeing the results obtained by Mulroney, he adopted this method, and through his large experience perfected it. This surgeon prepared his patient by instillations of two drops of a five per cent solution of cocaine, five minutes apart. After washing the lids with soap and hot water, the outer third of the eye lashes were clipped away to avoid the knife touching them. The cul-de-sac was then thoroughly irrigated with a one to two thousand bichloride solution. According to Smith's estimate, almost seventy-five per cent of the cases presenting themselves for this operation had trachoma in one of its stages.

Notwithstanding the scanty preparatory treatment, it is claimed that only five cases of postoperative infection occurred in about 1,200 operations, a rather remarkable observation. Smith did not use atropin, as he did not deem this necessary, and at the beginning he used a spring speculum. The Graefe knife was inserted in the sclerocorneal junction and the counterpuncture was made at the corresponding point on the opposite side, the incision comprising half or almost half of the sclerocorneal margin. The incision is finished in the cornea, and in such manner that the edges of the corneal wound are cut as nearly as possible at right angles to the surface and not obliquely sliced, since the latter condition facilitates "overriding" with resultant increase in the astigmatism. An iridectomy may or may not be done, according to the fancy of the operator. In the Smith method, it is probable that there is slightly more likelihood of incarceration of the iris than when the capsulotomy operation is performed, and this is more apt to occur when there has been an escape of vitreous. Smith very pertinently remarks that these incarcerations of the iris have a distinct connection

with meddlesome dressing and meddlesome inspection.

Having briefly sketched some of the historical data relating to this operative procedure, the writer will now speak of the matter of elimination of the iridectomy step in its performance. As already stated, the operation has been done, although either accidentally or at most temporarily, by other operators. He is therefore fully aware that he is not proposing anything that is strictly new. It is probably true, however, that the intracapsular operation has been very generally accepted as a series of steps of which iridectomy was one. The incentive to attempt this method arose through what may be designated an accident, or rather through an imperfectly performed iridectomy as constituting one of the operative steps. Until two and one-half years ago, the writer had for almost thirty-five years performed only the capsulotomy operation. In this period of time he had performed, in private and in public medical service, approximately seven hundred extractions. In the last two and one-half years, he has performed fifty-six operations by the intracapsular method, the last twenty-six of which, with one exception, have been without iridectomy. This is not a large number to base emphatic conclusions upon. Twenty-five operations are entirely too few from which to make bold assertions. However, the results of these operations have been so satisfactory that the writer will continue the method to be described, unless a fuller experience points out its impropriety and inexpediency.

Some time since, while operating, and having made the corneal incision even more peripheral than the rule, there followed a difficulty in making an iridectomy, even as slight in degree as is usually performed. However, the lens was removed with very little trouble, not more than is usually the case and, by replacement of the iris, the pupil appeared almost as round as though no iridectomy had

been performed. The result was excellent, the patient obtaining vision of full 20/20. There was rapid healing, and the patient was fitted with glasses within one month of the operation. Subsequent to this, the writer has performed twenty-five intracapsular operations, with one exception all without iridectomy. All of these have been satisfactory as regards visual results. The pupils in eighteen have been round and centrally placed, and entirely clear. In the remainder, there were varying degree of incarceration of the iris, that arose from slight vitreous prolapse, but this did not materially decrease the visual results—some obtaining as good vision as the more perfect pupils.

It is the general opinion that there is a slightly higher percentage of vitreous trouble in the intracapsular method; but, where these cases are handled skillfully, and with entire avoidance of meddling, they progress as a rule to a satisfactory and undelayed recovery, although the astigmatism may be of higher degree, and for obvious reasons. While the remarks regarding vitreous prolapse may apply only in his own experience, the writer has observed actually less vitreous trouble—and possibly for a reason to be spoken of later—than occurred in the capsulotomy operation. In the larger series of many hundred constituting his earlier experiences, he had usually performed what is known as the "simple operation"—that is, the capsulotomy method without iridectomy. The added simplicity of the intracapsular operation with iridectomy omitted reduces the operation to its simplest terms, since it leaves but two operative steps, first the incision, and second the expulsion of the lens by pressure through this incision. This paper is but a preliminary note, and as stated, so long as a like success attends his subsequent operations the writer will continue this operation as described, without the step of iridectomy.

I shall describe briefly the method

of procedure in my cataract operations. It is desirable in most cases that the patient be in the hospital one or two days preceding the hour of operation. He should be surrounded by quiet influences. During this time, the eyes can be flushed with boric acid, three or four times a day, and small doses of calomel given, later followed by thorough emptying of the bowels by any proper drug to be selected, the writer preferring in most cases the solution of citrate of magnesia. He selects as the time of operation an hour that is not the busy or noisy period of the day, so far as the operating room is concerned. He believes that thorough anesthesia is exceedingly important in the success of the operation, and is not afraid to use the stronger solutions of cocaine. Two drops of an eight per cent solution of cocaine, to which have been added a few drops of adrenalin, are instilled into the eyes four times at five minute intervals.

The patient is then wheeled into the operating room, and the entire side of the face thoroughly scrubbed with warm water and green soap, care being taken to have the eye tightly closed. The upper eyelashes are closely cropped and the face thoroughly washed in 1 to 5,000 bichloride solution. The eyelids are then separated and the eye thoroughly flushed with a 1 to 10,000 bichloride solution. Small pledgets of cotton, saturated with boric acid solution, are then used to rub with considerable force all parts of the conjunctival sac. This the writer has done from his earliest experience, after the practice of the renowned Galeowski at his clinic in Paris. This mechanical sterilization the writer believes to be a practical point. After the use of the mechanical sterilization with the cotton pledgets, the eye is freely irrigated with sterile water.

One hour before the time of operation, one drop of a one per cent solution of atropin has been instilled into the eye to be operated on. The only

exception to this is in noticeable increase of tension of the globe. The dilatation secured in this way facilitates the removal of the lens and its capsule through the unutilized iris.

There now comes consideration of what the writer believes to be a very important feature in the attainment of success. He has frequently observed that patients are brought into the operating room and the operation started without acquainting the patient with just what is expected of him. This often leads to dire results in the most critical part of the operation. It is the writer's practice to "drill" the patient for several minutes and several times, in the control of his eye movements and fixation. He is told to look in the different directions until he can accomplish this by a very slow and sure movement of the globe, and at the same time he is taught how to hold the eye steadily fixed in a certain position. If this drill is not carried out, it may be found that when the patient is told to look downward he very often does so with a sudden jerk, which may endanger the eye from loss of vitreous. This preparatory training should be stressed as a very important matter, and it should not be overlooked.

A word regarding lid control during the time of operation. The writer uses a speculum which he inserts himself, and always removes himself. He is quite aware that, in the opinion of operators generally, this is an inexcusable heresy. A speculum is described as a most dangerous instrument; and, in the hands of the unskilled, it undoubtedly is. A bar-type speculum (without spring), properly greased with sterile vaseline, and properly removed has been in the writer's hands entirely satisfactory. Undoubtedly, a skillful attendant, fully aware of all possible dangers, with a fine muscle sense, and thoroughly accustomed to the technique of his chief, is desirable, and probably constitutes an important aid. However,

most of us do not have such trained assistants, and we do not perform enough of these operations to bring about the necessary skill on the part of the assistant. In view of this, I prefer the speculum. If in holding the lids apart the assistant produces too much traction, the very danger we desire to avoid is invited. Without the hands of the assistant, I think I have a freer field for operation. When the patient feels a fixed degree of pressure such as we obtain with the speculum, he is not so apt to have spasmotic movements of the orbicularis as when this degree of tension is varied.

The danger comes with the removal of the speculum, and the writer must confess that herein lies a real menace to the entire success of the operation, unless it is removed by skillful hands. The lower bar of the speculum should be removed first, when it is moved upward with a pressure exerted to a very slight degree upon the upper bar. Great care must be taken that the upper bar is always away from the globe while this is being done. As soon as the lower bar of the speculum makes its escape, the upper lid can be allowed to descend as it slides over the upper bar, which is elevated gently from the globe itself.

The writer has not found it necessary to paralyze the orbicularis, a procedure that has become a routine measure in some clinics. The incision made is the usual intracapsular incision, being at its upper part removed quite a distance from the corneoscleral margin. The next and the important step in the operation is a steady pressure by the blunt hook at some distance below the scleral border on the globe.

A point of importance to speak of is the proper use of a large, broad spatula (Fisher's) at this point of the operation. If this is correctly used, much assistance is given to the blunt hook in breaking the lens capsule from the zonule. The writer

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finds it even permissible to enter the wound itself with the end of the spatula, but very gently, and by pressure slightly backward and downward, to coax and follow the upper lens border from under the iris and out into the wound.

My experience in performing these operations without iridectomy has indicated that a no longer period is required, neither is greater pressure demanded, than when iridectomy has been performed. As spoken of earlier in the paper, the writer desires to express the opinion that the presence of the unmitigated iris rather lends itself to the protection of the vitreous body, and to the avoidance of vitreous loss. As a rule, the pupil noticeably contracts after the operation, and is soon well out of the way of the incision.

The writer, however, wishes to warn against the mistake made in some earlier operations, of wrongly introducing the spatula blade when the iris needs to be replaced. The blade should be held strictly parallel to the posterior surface of the cornea, that is, vertical to the anteroposterior axis of the eye. If this is not done, there is danger of the end of the spatula breaking into the vitreous mass. This is an exceedingly important point to be remembered. It is far better, unless the iris imperatively demands it, to keep any instrument out of the anterior chamber after the lens has been removed. Eserin should not be used.

In case of loss or prolapse of vitreous, the operator should immediately close the lids and place the pad and bandage without further interference. In operators without experience, curiosity and fear constitute the gravest menaces to the operation. The disposition to assure oneself as to how things look is an unfortunate mental attitude. At this stage, whatever has been done or left undone is irretrievable, and nature will do more and much more safely than meddlesome interference will do. A slight

prolapse of vitreous will commonly replace itself, and after the removal of the bandage at the end of six or eight days one is pleased to find that the operation has been satisfactory.

So long as results justify it, the writer will continue to use this method without iridectomy, but he is clearly aware that the comparatively few operations he has performed do not justify final conclusions or even academic advocacy of such a method until further experience is obtained. He wishes strongly to emphasize this, in order to avoid criticism that might be levied against hasty conclusions or snap judgements. Finally, he also desires to reaffirm that, while he is not yet sure whether other operators have preceded him in this method as *part of their routine procedure*, he does not claim precedence in what might be properly designated a simple two-step method, involving simply incision and expulsion by pressure.

The position assumed during the operation is at the head of the patient, for both right and left eye, using the right hand to make the incision in the right eye, and the left hand for the left eye. This position is a favorable one for the application of pressure in intracapsular extraction. The operator's position is not changed, except when the speculum is to be removed. It is very desirable for young operators to cultivate the use of the left hand, for ambidexterity is of great advantage in the cataract operation, though not strictly essential. During the operation, the operator constantly talks to his patient, to encourage him and to distract his attention from his critical position.

Regarding after treatment, it has always seemed to me that the best is no treatment of meddlesome character whatsoever. The bandage is not removed until the sixth or eighth day, at which time the lids may be gently cleansed with any sterile solution. The eye may be carefully inspected at this time, and, if appearances are satis-

factory, no irrigation or any other form of treatment is used except cleansing the lid margins with saturated boric pledges. This plan is carried out until such time as seems proper to remove the bandage.

It is evident that the writer assumes that the question of success or failure is largely determined by the pre-operative preparation and the operative procedures constituting the operation. He believes that meddling is one of the most pernicious practices, and fraught with real dangers. If an infection occurs, it is only in the fortunate cases that the eye is saved.

That such cases do occur is evidenced by one of his own operations within the last two years. On the third day, there was pain in the eye, and after removal of the bandage the wound proved to be infected. Heroic local and general measures saved the eye, and the vision obtained was 20/20, the same as in the other eye operated on, in which there had been no infection.

As one looks backward over the various phases and steps in the evolution of the cataract operation, he must be impressed by the observation that, from the complicated series of operative procedures, this operation has gradually evolved into the simplest procedure possible. It is strange that the most complicated processes were first adopted, involving as they did the greater dangers, but one after the other they were dropped, until now we have an operative procedure so simple that we wonder this simplicity did not appeal for adoption in the earliest days of development.

Multiplication in technique and added operative complexity are not desirable. The simplest operative procedure we can use to obtain the desired result is the one of election. Regarding this phase of our subject, it is proper to note that there has recently been an attempt to revive the old operation of Pflüger, in which a conjunctival bridge was used in the removal of cataract. As pointed out by

Elschnig of Prague, there is nothing new about this method. Pflüger described this operation in 1903. More recently, Pavia and Dusseldorf have described a bridge operation essentially the same as Pflüger's.

The writer has not used the bridge method of extraction, and it does not appeal to him. Elschnig has operated upon approximately 5,000 cataract cases without suture, and without conjunctival bridge, and in not one of these did eversion or inversion of the conjunctival or corneal flap occur. That the conjunctival bridge does not prevent infection has been well evidenced by Czermak. There can be very little doubt that the more complicated the procedure, the greater is the danger of infection. In addition, there can be no doubt that a conjunctival bridge renders extraction more difficult; and it seems to me even to render the control of vitreous loss, under some circumstances, more uncertain.

The application of a conjunctival suture is often advisable, especially in fluid conditions of the vitreous, and the simple application of a single thread suture passing from the conjunctival flap attached to the cornea to the conjunctival border above is often a real help and gives an added feeling of security.

In doing the intracapsular operation, one sometimes finds that small iritic adhesions to the anterior capsule are for the first time revealed. These adhesions sometimes cause difficulty in the expression.

The visual results we obtain in any form of cataract extraction depend upon many conditions besides those immediately relating to the operation. The presence of pathological conditions of the fundi, the general physical condition and age of the patient, the psychology of the patient, the degree of traumatism incurred at the time of the operation, the type of operation selected, and the skill of the operator are all important factors in the operative drama, and all exert

their influence upon the final results.

The beginner in cataract work, as well as a number of those who have had much experience, continues to perform the capsulotomy method on account of his beliefs in its simplicity. However, the writer is fully persuaded that the probability of secondary cataract and the dangers incurred in its treatment are of greater importance than the risks of the intracapsular operation. At the beginning, it requires a fairly good understanding of the technique of the intracapsular method, also a steady nerve, some courage, and no little degree of patience. Sometimes the expression is slow in its accomplishment. In such cases, it may be better to revert to the capsulotomy method, rather than to run into the greater risk of excessively severe trauma and extensive vitreous loss.

On account of some of these features which interject themselves, some have discontinued the intracapsular method before having arrived at the point where skill has brought about an increasing confidence. Perhaps not all operators are adapted to this method of operating, and of course it must be observed that personal opinion and experience are to influence each operator as to the operation he is best capable of performing. It is doubtless better for us to use the operation we feel will give us the best chance of success.

There is no doubt but that the trend of opinion in ophthalmology is toward the intracapsular operation, and the reason for this is not far to see, because after its successful performance we have an eye freed from the menace of an integral part of the cataract remaining. Again, it is not necessary to wait until the cataract is mature, and there is decidedly less postoperative inflammation.

It is to be noted that some of the procedures advocated for intracapsular extraction, such as the use of the needle, invite failure. The use of the

needle frequently bursts the capsule, and in this way no better results are obtained than from the old method. Many operators maintain that a burst capsule is a complication, and one that invites subsequent trouble. We know how difficult retained cortical substance is to get rid of.

It should be mentioned that some believe the astigmatism to be greater when an iridectomy is performed than without it. In a paper read by Parker before the Section on Ophthalmology of the American Medical Association (1927, pp. 222-228), it is stated that in combined extraction (with iridectomy) the average amount of astigmatism was 2.6 diopters, while in simple extraction (no iridectomy performed) it was 1.9 diopters.

The writer must further call attention to the fact that where, as occurs with certain irides, the mydriatic does not act well, removal of the lens without iridectomy in the intracapsular method should not be attempted. In these cases, the attempt to expel the lens only balloons the iris forward, and further attempt to express it invites disaster.

Finally, the writer desires to advert to the matter of retinal detachment occurring subsequent to apparent recovery from the intracapsular operation. He has operated upon unfavorable eyes in which, in rare instances, retinal detachment, occurring after recovery, has ruined a perfect operative result. I am not assured, by any means, that this tragic sequela arises from the globe pressure which is part of the intracapsular technique. With eyes presenting such unfavorable conditions as diseased choroid and vitreous, or other evident complications, it is better not to attempt the operation of expulsion within the capsule, or, if the operation is already started, to change over to the usual capsulotomy operation, especially if the lens is tardy in presenting. In such cases, a previously introduced conjunctival suture is indicated.

Conclusions

1. It is the writer's belief that intracapsular removal of a lens without iridectomy is practical and, under the usual conditions, a relatively safe procedure and that the results obtained, cosmetically and functionally, may be better than by any other method.

2. Complete local anesthesia is important. This is only obtained by the stronger solutions of cocaine, used for a relatively long period before the incision is made.

3. The lid control may be safely

left to the speculum if in well-trained hands, but a trained assistant with lid hooks is more generally acceptable, and is possibly the safer procedure. The spring speculum is never used by the writer.

4. Preliminary training of the patient in movement and fixation of the eyeball is not to be overlooked.

5. Following the extraction, all meddlesome procedure or inspection is to be condemned.

418 *Insurance Exchange building*

A RECENT VISIT TO THE BARCELONA CLINIC OF DR. IGNACIO BARRAQUER

G. ORAM RING, M.D.
PHILADELPHIA

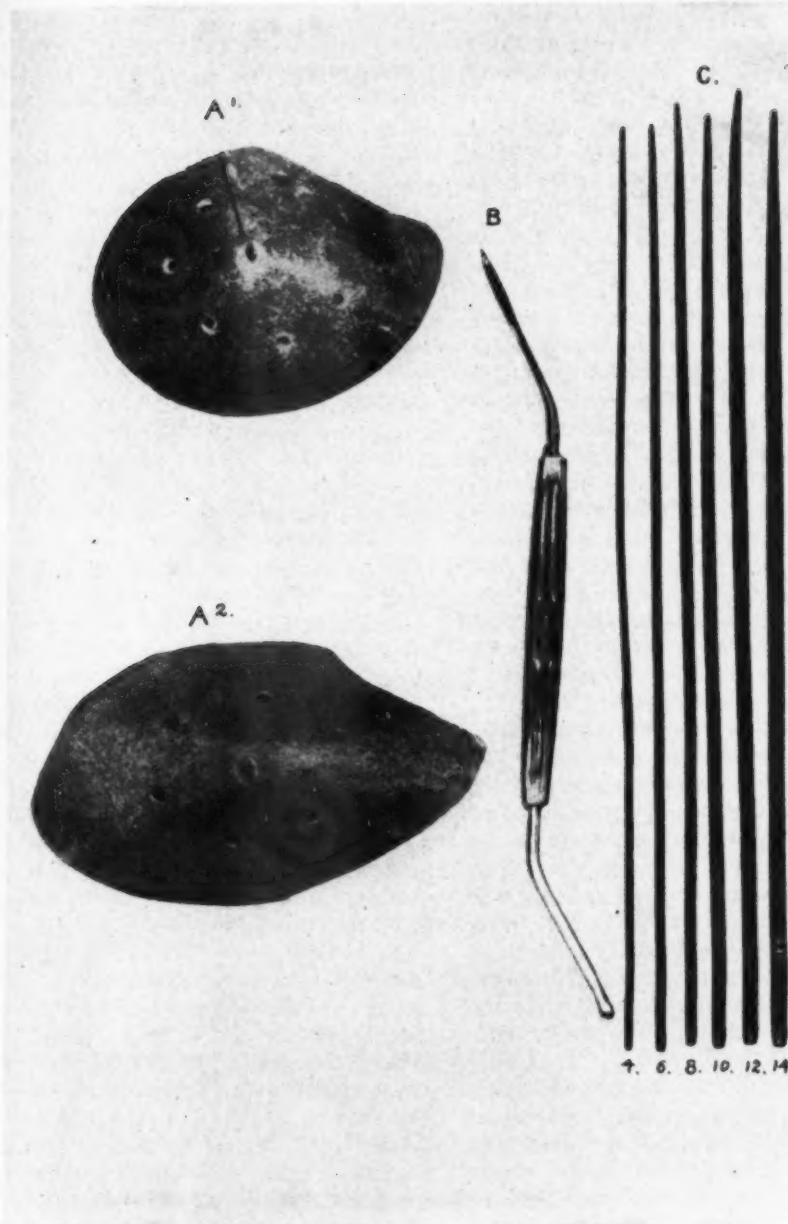
After mentioning in a preliminary way several miscellaneous surgical procedures to which Barraquer has devoted his attention, the author gives a detailed account (1) of the operating environment of the Barraquer clinic, and (2) of the suction operation for extraction of senile cataract as at present performed by its inventor. Read before the Section on Ophthalmology of the College of Physicians of Philadelphia, October 18, 1928.

It was my pleasure approximately a year ago to present to the Section on Ophthalmology of the College of Physicians of Philadelphia some observations on a summer visit to the Paris clinics of Drs. Morax and Magitot.

It is a comparatively far cry from the easily accessible and fascinating French capital to the major city of Spain, which shares with Paris an alluring combination of the ancient and the modern but has as its own special charm a setting of extraordinary beauty. With its façade looking seaward and a background of mountains, is a gateway to a land that for centuries has attracted lovers of romance and history, of nature and art, enthralled by her rich store of ancient treasures. Whether one reaches it by the twenty-one hour train from Paris, by a modern Italian boat to Gibraltar, by the recently augmented Spanish line to the city itself, or by one of two superb motor routes over the Pyrenees, the journey is abundantly rewarding.

To the modern ophthalmologist, however, Barcelona is synonymous with Professor Barraquer, and it is to a recent visit to his public and private clinics that I briefly invite your attention. If you contemplate such a visit I assure you that every facility for observation and study will be accorded you. I must advise you however to select for your visit either the spring or fall months. The excessive heat of the summer curtails the material available for operation and compels a rest period in August for the surgeon himself.

Dr. Barraquer is about to organize spring and fall clinical courses, each of two months duration, during which period both his public and private clinics will be available. The famous old hospital of Santa Cruz, over six hundred years old, can not be said to comport with our modern ideas of a completely up-to-date public institution. This fact Dr. Barraquer emphasizes, but he is gratified to add that a new and absolutely modern in-



A recent visit to the Barcelona clinic of Dr. Ignacio Barraquer (Ring). A' and A'', perforated shields made by Dr. Barraquer's nurse for each individual case. B, Llovera stricturotome. C, Pouillard's series of flexible probes.

stitution is in course of construction and will be completed within two years, a portion of it now being available. From the viewpoint of the internist the present institution must offer amazing opportunities for study, as I counted over one hundred and fifty cases in one ward, the beds being four rows deep. These cases I afterward learned had been admitted with fever and were to remain in that ward during the period of differential study, after which they would be assigned each to a niche in the great hospital for continued study and appropriate treatment.

The ophthalmic dispensary service is a very large one, numbering from one hundred to one hundred and fifty cases a day. The clinic hours are from eight to eleven in the morning, leaving the special student free to avail himself of the private clinic after the latter hour, which is a model of up-to-date equipment. In the hospital outdoor service I was amazed at the number of trachoma cases, one of the seven clinical assistants being assigned to these cases only and his numerical average being quite fifty a day, in many cases entire families being afflicted. If these cases are seen early complete cure is claimed in an average treatment of two months. Excision, galvanocautery puncture, and brossage are practised, and silver nitrate is extensively utilized.

In my communication regarding the clinic of Dr. Morax, emphasis was placed upon his preferential and skillfully performed bony resection operation for chronic dacryocystitis, the special method being a modification of that of Depuy-Dutemps.

Such cases in the Barcelona clinic are routinely radiographed and treatment instituted dependent upon the findings. Stricturotomy, bony resection, and sac excision constitute the usual methods of approach. Stricturotomy after the method of Poulard, followed by the use of flexible probes until the cure is regarded as complete, is in great favor. Large numbers of

tear duct cases are in attendance, and one or two clinical assistants devote all or most of their time to this work. From the results noted in the various stages of treatment, the impression gained was a favorable one.

Preceding the cutting of the stricture, novocain is injected in the regions of the supraorbital and infrabrow orbital canals. The instrument in favor is the stricturotome of Llovera of the Barcelona clinic, and is made by Dugast, 108 Boulevard Saint Germain, Paris. It will be observed that this treatment involves a return to slitting of the canaliculus, a procedure which many of us have not been in the habit of using latterly in this country.

The enthusiasm of the clinical assistant, who is thoroughly skilled in the performance of the above procedure and whose time is entirely devoted to this type of work in the clinic, ranks it as the method of election even in those cases in which intraocular operation is to follow, unless definitely proved not to have cured the patient after a trial of at least a month. Dr. Barraquer, however, is not in accord with this judgment, and elects to perform a sac excision before his intraocular work.

I ask your attention for a moment to an operation performed most skillfully in the public clinic by Dr. Barraquer, and which in my experience is rather unique.

A child, three years of age, had in the right eye spontaneous dislocation of a perfectly transparent lens in its capsule down and out into the anterior chamber, with a considerable amount of transparent vitreous, especially above and to the inner side of the chamber. The iris in the latter position was distorted and pressed irregularly backward by the vitreous. The anterior chamber was very deep in the superior half. Emphasis was placed upon the nontraumatic origin of the condition and upon the fact that it represented a pure luetic mani-

festation. It had been present less than a month. A brother had two congenital cataracts.

Operation was done under chloroform. An incision was made with a narrow Graefe knife and a small conjunctival flap secured. A small amount of vitreous prolapsed at the inner side of the puncture, and was excised. Extraction of the lens was then done in capsule, quickly and skillfully with a spoon, without any further vitreous loss. A conjunctivo-corneal suture was inserted downward and outward. An effort was then made to place the iris in normal position, but a small downward iridectomy was decided upon where the iris showed a tendency to prolapse down and in. The iris was then gently manipulated into position with a spatula and a second stitch inserted.

The resulting pupil was black and the eye looked remarkably well with a slightly eccentrically placed pupil. Atropine was instilled and the lids sutured. Both eyes were bandaged and stiff cardboard placed around each arm as a splint to effectually remove any possibility of injury to the operated eye by the little patient. During a meeting in Paris with Dr. Barraquer late in August he advised me the patient had done extremely well.

It was observed in connection with other operations, for example one in which a mass of partially absorbed cataract had to be incised to induce further absorption, that preference was given to the small knife modelled after the larger Graefe. This was a type of case in which we should have adopted the Ziegler procedure unless the mass had been regarded as abnormally tough, in which case we should probably have utilized the keratome and the de Wecker scissors. On the other hand, in a case that required an iridotomy below, because of the presence of a pupil closed by a mass of exudate, following a cataract extraction in a diabetic, the iridotomy was skillfully done with the de Wecker scissors and a vertical

opening in the iris secured, whereas from our viewpoint it was an ideal case for the Ziegler V-shaped iridotomy procedure. Each of these operations was performed with quickness and skill, and each illustrates the tendency to hold to the method that one has made his own.

Combination corneal trephine and suction instrument

You are familiar with the unsuccessful efforts of earlier ophthalmologists to replace a section of opaque cornea by a transparent section from a recently destroyed human eye or by a similar portion of a rabbit's cornea. Whether this much-to-be-desired consummation in the treatment of nebulous or leucomatous corneas will ever be reached, only the future will determine. The instrument evolved by Dr. Barraquer after some months of experimentation is extremely ingenious. It does away with both speculum and forceps. The corneal rim is gently but definitely drawn up by suction and when in satisfactory position the trephine screw is turned just enough to gently incise a circle of cornea. After the piece is removed, the contents of the anterior chamber having been disturbed but slightly, the section previously prepared from a recently enucleated eye or from that of an inferior animal is slipped into position. The incised circle is seven mm. at the epithelial layer and eight mm. at the endothelial. The conjunctiva, having previously been undermined, is then drawn over the cornea by a purse-string suture.

Only six experiments have been performed, in each of which a section of a monkey's cornea is made to replace a removed sector of the cornea of a cat. The results thus far are one infection with a negative result, two partially transparent, and three in which the transplant has remained completely transparent. The operation is extremely delicate and beautiful. No claim is yet made for

it. It has not been tried upon a human eye, and I mentioned it with Dr. Barraquer's permission as holding possibilities.

The suction principle in retinal detachment

Another application of the suction principle in the experimental stage may claim our attention for a moment. I venture the opinion that there are few types of ocular distress concerning which the average oculist regrets to be consulted quite so thoroughly as that bête noir, detachment of the retina. Dr. Barraquer has had made suction cups of several sizes, all larger than those used in cataract extraction. One of these, the largest I saw, was approximately four times the size of the ordinary erisiphake cup. In acute serous retinal detachment the conjunctiva is loosened, the cup placed on the sclera over the detachment, and the suction applied for about fifteen minutes daily. The success which will attend this procedure in a series of cases Dr. Barraquer will later make known, and he will announce the preferable size of cup and strength of suction. This I mention also with his permission. In some of the cases upon which it has been tried encouraging results have been noted. For example, in one case under treatment at the time of my visit the detachment had been present but ten days. Treatment had been applied daily for three days with an improvement in field and vision of approximately fifty per cent.

Phacoerisis

It is of course assumed that the dominant purpose of a visit to the Barraquer clinic is to witness the operation for the extraction of cataract by the suction method (phacoerisis) at the hands of the expert who has popularized the method. You are familiar with the description as given in the text-books and will probably recall the two publications in the Archives of Ophthalmology, one in

1921 and a second in 1922, by Dr. Barraquer. In addition to giving in detail a description of the method employed by him, Dr. Barraquer makes a rather caustic criticism of the extracapsular procedure, comparing it to removal of the contents of an abdominal cyst by puncture and curette, instead of complete removal of the sac.

It is not at all the purpose of this communication to compare the two procedures, but it was thought that certain observations of the operating environment and possibly the noting of some variations from the original description might be of interest, with special emphasis given to the point long ago emphasized by Dr. de Schweinitz, namely, that the operation done by the expert in the clinical environment to which he is accustomed will very generally give a far more profound impression than when done in a foreign land with a different assistant at each operation.

Referring then to the operating room in the private clinic of Dr. Barraquer, the floor, ceiling and sidewalls are lined with a beautiful marble of soft gray tint. The sliding door of entrance is of plate glass, its frame nickel-plated. Table and stools are nickel-plated. The operating light is furnished by a Zeiss electric lamp, the brilliancy modified by the introduction of a light blue glass. This furnishes at a distance of one hundred cm. a circular and sharply circumscribed bright light of fifteen cm. diameter, the intensity of which is 2,500 or 1,700 meter candles respectively, according to whether high or low voltage is employed. The distance of the radiant field from the projection lens can be suitably shortened by the introduction of a supplementary lens. For use in ophthalmic surgery, the suggestion is made that a plus four be introduced, making the radiant field about nineteen cm. from the projection lens. A revolving supplementary mirror

which can be inclined makes it possible to deflect the beam as desired.

This method of reducing the intensity of the light which shines upon the patient's eye is not a part of the original light, but is added especially by Dr. Barraquer. It is grateful to the patient and apparently gives the operator quite sufficient illumination.

The light extends from a vertical shaft, and fixed upon this upright, in such a position that it can be placed over the upper part of the patient's chest, is a metal instrument tray in which, after cleansing, alcohol is placed and burned off by the nurse in attendance. After the alcohol is burned away, the instruments, which have been subjected to dry sterilization, are placed on the tray in the exact order in which they are to be used, so that they can be selected by the surgeon without removing his vision from the eye upon which he is operating.

In addition to the assistant, whose only function is the control of the lids, there are a nurse and a secretary each appropriately gowned, the latter finely trained to critically observe and make detailed notes of the operation, which are of course afterward reviewed. The operator and assistant are in gray gowns, to which the hooded mask is attached. Operator and assistant use cotton gloves, the seal of the sterile package being broken by the nurse just preceding the moment of beginning the operation. If a single word is spoken it is by the operator to the patient.

I mention these details to give an impression of an atmosphere as absolutely restful to nerves and eyes as an ophthalmic procedure can be made. As a rule only two visitors are permitted to observe.

In the preparation for the operation special emphasis is placed upon what is known as the "bandage test." That is to say, a gauze pad is placed over the eye to be operated upon, is attached with adhesive, and is per-

mitted to remain over night preceding the operation. If the eye and pad are free from secretion the next morning, the preliminary antiseptic preparation is proceeded with. If there is any secretion it is stained and is personally examined by Dr. Barraquer. This rule is invariable. On one of the mornings of my stay, two private extractions were postponed because each pad was soiled and examination in each case showed the presence of pneumococci. In each of these cases the second morning gave a similar result and, as in each patient the opposite eye had been lost by operation in the hands of another surgeon, and as the patients were both frail and the July weather very warm and enervating, it was decided to postpone operation altogether until September or October.

An additional observation was made in one of the two, a male aged about seventy years, who when light perception and projection were denied him, the fellow eye being blind, promptly showed evidence of a pre-operative dementia.

It will be observed that, in the absence of secretion, no microscopic study is made, whereas I think most of us are in the habit of routinely having smear and culture studies preceding operation, after the patient has entered the hospital. It is the opinion of Dr. J. A. Kolmer of the graduate school of the University of Pennsylvania, expressed in a personal communication, that an accurate determination of the bacterial flora of the conjunctiva is best secured by the examination of both smears and cultures, providing the latter are made in glucose-hormone broth or on glucose-hormone blood-agar. He likewise feels that a bacteriological study of the eyes preliminary to operation should be insisted on, even in the absence of visible secretion. This opinion accords with that of my personal bacteriologist, Dr. Claude P. Brown, and with my invariable habit.

Dr. Barraquer finds that if the pa-

tients safely pass his rigid bandage test the sailing is generally smooth. At the Barcelona clinic, if secretion persists, an autogenous vaccine is given in addition to the necessary local medication.

In the absence of symptoms, Dr. Barraquer is not in the habit of washing the tear duct as a preparatory measure, although pressure is made in the usual way in an endeavor to elicit secretion. It is not the routine habit of the clinic to precede operation with any intranasal antiseptic. In the presence of dacryocystitis, as has previously been noted, excision of the sac is Dr. Barraquer's advice, preceding operation, despite the enthusiasm of his assistants for preliminary strichotomy and flexible probing.

Preparation of the eye by the assistant consists of soap and water washing followed by a solution of silver nitrate four per cent, to the lids, brows, and lashes. The silver is neutralized with a normal saline solution. In the absence of any proved conjunctival disturbance no silver is used in the conjunctival sac.

Three injections of one per cent novocain are made into the temple and lids as pictured in the Fisher monograph, about ten c.c. being used. The pupils are dilated with a sterile five per cent ointment of euphalmin and cocaine, never with atropin. Objection is made to the drying effect of the liquid for dilatation and anesthetizing, hence the use of the ointment. The maximum dilatation of atropin makes the removal of a piece of iris midway between the pupillary and ciliary borders difficult.

The problem of the separation of the lids during a cataract extraction is always of grave importance. Dr. Barraquer is evidently not entirely satisfied with his method of lid control, which nevertheless in the hands of a regular trained assistant has much to commend it, so he is again utilizing his inventive genius and is evolving a speculum which will separate the lids and yet keep the eyeball

free from pressure by an adaptation of the suction principle. The desire is to utilize the same electric motor for this purpose as for the use of the erisiphake, but no definite decision as to the exact suction power for the former purpose (speculum) has yet been reached. If this point is satisfactorily covered the tendency will be to very gently draw the eyeball forward, thereby entirely eliminating pressure upon the globe, an ever present danger in our usual procedure.

Dr. Barraquer always operates standing behind the patient, his assistant always on the right, the upper lid controlled by the Desmarres elevator, the lower lid with the opposite hand. The operative technique is well-nigh faultless. A narrow Graefe knife is used and a moderately large conjunctival flap secured, if possible much larger than that figured in the published sketches of the operation. The flap is never made with scissors, preceding the incision. One nearly central stitch is loosely inserted in the conjunctiva. The threaded needles are kept in tubes of alcohol. The flap is turned down on the cornea and the small section of iris removed. Whenever possible, this section is midway between the pupillary and ciliary iris borders. In reply to an unnecessary question upon my part as to whether the removal of the minute button of iris was Dr. Barraquer's invariable procedure, his reply in German was: "One can not always do as one desires."

The dramatic moment of the operation having arrived, the erisiphake is now taken in the operator's right hand and the cup gently placed on the capsule down and in, just under the lower and inner pupillary edge, without pressure. When the instrument is in the desired position the suction is applied and the lens in capsule very gently made to dislocate so that the lower border is lifted and the lens made to tumble. While this is the routine procedure it is not invariable. For example, in one

of the operations, on an anterior capsular cataract in a woman of fifty-two years, the lens itself transparent, the operator gave the lens a gentle to and fro movement and, inclining it toward the temporal side, gently drew it out without loss of vitreous. The conjunctival flap is then drawn into position and two to four additional stitches inserted.

Eserin is immediately instilled following the operation. The eyes are dressed and are covered with a perforated pasteboard shield. These shields are prepared by the surgical nurse, the size depending upon the need of each individual case. A roller bandage is then applied.

If the operation has been a smooth one the eyes remain closed until the third or fourth day. The patient is kept in bed until the initial dressing, and this is done by Dr. Barraquer himself, never by an assistant. Normal saline followed by atropin ointment is the usual procedure at the first dressing. The bandage is kept on the operated eye for about eight to ten days, but is removed from the opposite eye after the first dressing.

In the near future there will be published in this country a paper which will detail the results of one thousand consecutive cataract operations performed by the surgical craftsman at whose clinical procedures this communication has attempted to give a suggestive glimpse. In another paper there will probably also be detailed an account of thirty extractions performed by him after in each

case the opposite eye had been lost by one of the more generally recognized methods of procedure in the hands of other surgeons. The present writer does not desire to give the impression that in his judgment the suction procedure alone was responsible for this extraordinary result, but that it was the ensemble involved in careful preliminary general and local study plus the skillful operative technique by a method which in the inventor's hands has become safe because routinely and enthusiastically followed for approximately twelve years.

The removal of the cataractous lens in capsule from the patellar fossa either by the finished procedure of Dr. Arnold Knapp or by that of Dr. Barraquer has the immeasurable advantage over the Smith method that either of the former two if properly performed eliminates the element of pressure. Many of us who have elected the extracapsular method of extraction, and have had with it many years of experience, can report very many happy results, a percentage indeed well up in the nineties. Admitting, however, the beauty of the intracapsular procedure if the operation chances to be a perfectly smooth one, I commend you to the Barraquer clinic for observation and study should you desire to see at first hand a master technician in one of the recognized procedures of our craft.

Northeast corner, Seventeenth and Walnut streets.

THE CONJUNCTIVAL BRIDGE IN CATARACT OPERATIONS

CARL T. EBER, M.D.

SAINT LOUIS

The author uses a conjunctival bridge from four to six mm. wide and ten to twelve mm. long; making an iridectomy from the temporal side of the bridge. Delivery of the lens is facilitated by simultaneously depressing the scleral lip of the wound and elevating the bridge, with a specially designed pair of toothed forceps the jaws of which are passed beneath the bridge and opened to receive the expressed lens. Read before the Saint Louis Ophthalmic Society, October 26, 1928.

The keynote in virtually every report of new or modified operative procedure in cataract surgery is greater safety in the method advocated. Today the simple flap operation is the one most widely used in senile cataract cases. This method, as we all know, gives good results in the vast majority of cases in which there is no vitreous loss and in which the surgeon has the proper cooperation of the patient both during the operation and during the period of convalescence. Even when traumatism has occurred later, as during attacks of senile dementia occurring in the early postoperative days, many an eye thus operated has weathered the storm without sustaining permanent injury. Yet these and other accidents have occurred frequently enough with ill effects to induce a number of ophthalmologists to seek and perfect methods whereby such discouraging complications may be obviated or at least reduced to a minimum.

Of course, no one surgical procedure can be applied indiscriminately to all cases with equal success, nor can all operators adopt any one procedure in a given class of cases with equally good results. While acknowledging these obvious peculiarities, yet after scanning the literature and seeing the various "accessories of safety" employed, I am sure that the average operator will find many of these procedures too elaborate or difficult to employ in his work, unless he has opportunity for doing more than the allotment of surgery which comes to the average oculist.

Aside from Czermak's¹ conjunctival pouch operation, which he described in 1903, there are two general classes of

operation to replace the original Graefe flap type, namely the conjunctival bridge and the suture operations. Cluckie,² in 1909, was probably the first to describe a true bridge operation. In 1913, Robert Scott Lamb³ advocated practically the same operation, but added irrigation of the anterior chamber with normal saline solution. More recently Pavia and Dusseldorf⁴ proposed a rather elaborate procedure in which they employed a wide bridge and conjunctival sutures. Last year, Ewing⁵ described an operation which differs from Cluckie's in that his bridge tapers and curves slightly to one side.

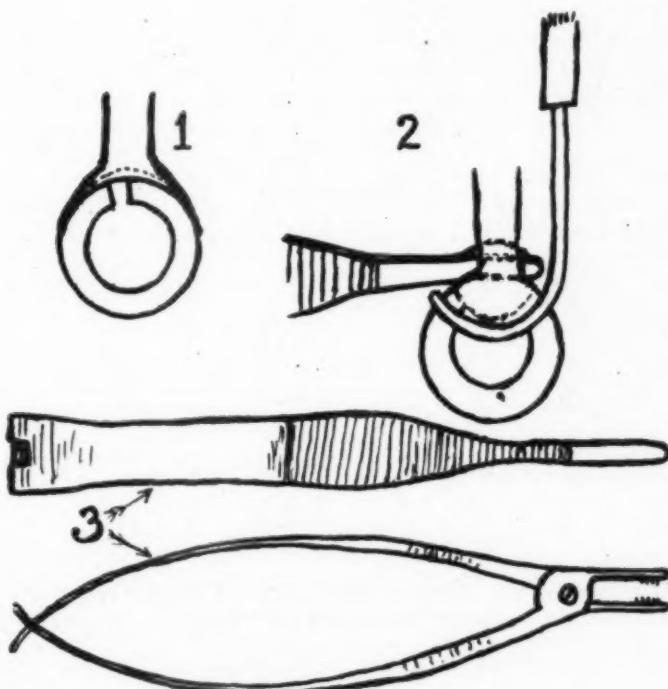
The various forms of conjunctival, scleroconjunctival, and corneoconjunctival suture operations which have been described have also been employed successfully by a number of surgeons, but probably are not much more popular than the bridge. The advantages and disadvantages of each of these two groups have been voiced repeatedly.

The principal objection to the bridge operation, I believe, is the frequency with which lens substance remains behind after expression, because the gaping of the wound is restricted by the bridge. For that reason, in 1916, Howard⁶ abandoned this procedure for the scleroconjunctival suture. I have felt very kindly toward the suture operation, and employed it constantly for several years with very good results. However, it was my good fortune during this period not to have vitreous escape in any of the operations, so that I was not able to prove its efficacy in that sort of emergency. In spite of statements to the contrary, I doubt whether one can draw up the

suture quickly enough in such an emergency to appreciably reduce the amount of vitreous loss. As a postoperative safeguard, I have appreciated its comforting presence.

In considering the conjunctival bridge, I believe the methods advised by Czermak and by Pavia and Dusseldorf are too elaborate for the usual type of case and for the method of expression commonly employed. Cluckie's and Ewing's methods come nearer to

cain and adrenalin near the superior limbus before making the section not only augments the anesthesia and helps control conjunctival bleeding, but makes the cutting of the bridge a very simple procedure. The iridectomy is made from the temporal side of the bridge. (Fig. 1.) The possible interference with delivery of the lens, which I also experienced in the first few operations, can be overcome by employing a long enough (ten to twelve



Figures 1, 2, and 3 (Eber):

1, showing sclerocorneal section with conjunctival bridge and position of iridectomy.
2, lens being expressed into open jaws of forceps under conjunctival bridge.

3, lens forceps, two views.

my ideal of effective simplicity. In place of the latter's tapering curved bridge, I had been employing a broad bridge, four to six millimeters wide and about ten to twelve millimeters long, for some time before learning of Ewing's method. My bridge is precisely that of Cluckie, and is fashioned with the Graefe knife after it leaves the upper limbus.

A subconjunctival injection of novo-

millimeters) bridge, and by causing counterpressure of the scleral lip of the wound simultaneously with sufficient elevation of the bridge to allow free gaping of the wound. This I have found best done by inserting the jaws of a pair of forceps* (fig. 3.) under the bridge from the temporal side, then opening the jaws to receive the ex-

* The forceps were specially made for me by V. Mueller and Co. of Chicago.

pressed lens (fig. 2). The latter is removed by withdrawing the forceps. I irrigate the anterior chamber in the usual manner, when necessary, assisting the return flow by raising the nasal side of the bridge with a spatula.

A few months ago, I had occasion to remove a dislocated cataract from a young colored man who had secondary intraocular hypertension. After the bridge was completed, the patient squeezed. Spontaneous delivery occurred, accompanied by a small gush of vitreous. The speculum was immediately removed and the patient allowed to rest a few minutes with his eyes closed. An iridectomy was then done and the eye sealed. Convalescence

was uneventful and the final result good. I am certain that in this instance the bridge prevented considerable vitreous loss which would have occurred if I had had to draw up a suture. True enough, such cases are not encountered frequently, but I mention this case to demonstrate the efficacy of the bridge.

The method here reported is an old one as to its general feature and I claim no originality, but I do believe forceps overcome to a great extent the principal objection to cataract delivery under a bridge, and I think the conjunctival bridge deserves more popularity than it has heretofore enjoyed.

1006 Carleton building.

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A STUDY OF THE FACTORS CONCERNED IN DEPTH PERCEPTION

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The author discusses the relative value of the several factors concerned in depth perception, as recognized by Howard, namely binocular parallax, terrestrial association, motion parallax, aerial perspective, size of retinal image, accommodation, convergence, and physiologic diplopia. Convergence plays an important part in depth perception, by establishing a horopter which divides crossed from uncrossed diplopia in details respectively proximal from and distal from the horopter; and by placing corresponding retinal areas in relative positions from which may be determined the relative positions of objects or points in the field of vision whose images fall upon these retinal areas.

From the pioneer work in this field, Howard recognized several factors:

- 1, binocular parallax
- 2, terrestrial association
- 3, motion parallax
- 4, aerial perspective
- 5, size of retinal image
- 6, accommodation

7, convergence

8, physiological diplopia

Of these factors, terrestrial association, aerial perspective, and size of the retinal image depend upon external conditions for their value in depth perception, and are constant for every individual with normal central visual

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acuity. Accommodation, convergence, binocular parallax, and physiologic diplopia depend upon internal conditions, and vary with the visual equipment of the individual. The parallactic angle is only a mathematical expression of different degrees of convergence.

A review of the physiology of sensation and of the sensory organs will show that the retina, a highly organized receptor, is far better equipped than any muscle sense receptor for registering fine, and widely varied, stimulations—a process which is necessary in depth perception.

The muscle sense of accommodation is a factor for very gross determination of depth differences. It is practically lost beyond a zone of six meters.

Physiological diplopia is normally always present in the field of vision. When the visual axes are parallel, there is no convergence. The point of fixation is infinity. Then all objects in the field of vision appear as projected, false, crossed images. The crossed images of the nearer objects are more widely separated than the more distant objects.

If now the eyes are converged so that the point of fixation is within infinity, there is a horopter (which is a section of a sphere, and not a line) established through the point of fixation. There is crossed diplopia for all objects proximal from the horopter, and there is uncrossed diplopia for all objects distal from the horopter. There are single projected false images for all points on the horopter. Referring to chart 1, let point A be the point of fixation. A point 6, distal from the horopter, will form images on noncorresponding retinal areas C" and B', from which the false, uncrossed, double images 3 and 1 are projected. The fusion center interprets the uncrossed images as being at point 9, at a greater distance from the observer than the point of fixation.

Again, with fixation at point A, a point 16, proximal from the horopter, will form images on noncorresponding

retinal areas B" and C' from which the false, crossed, double images 3 and 1 are projected. The fusion center interprets these crossed images as being at point 13, which is nearer the observer than the point of fixation.

Again, with fixation at the point A, a point B (a point on the horopter) will form images on corresponding retinal areas B" and B', from which a single false image, 1, will be projected. The images from the retinas are completely fused by the fusion center, which interprets the position of B as being at the same distance as the point of fixation from the observer.

Thus, the mechanism by which the diplopias aid in the determination of the relative positions of points in the visual field can be explained.

Furthermore, when a horopter has been established, the greater the distance that a point lies from that horopter, farther from or nearer to the observer, the more widely separated are the uncrossed or the crossed, projected, false images. The difference in the amount of separation of the false images of two objects is interpreted, by the fusion center, in terms of greater and less distances from the observer. The images of the nearer objects are more widely separated than those of more distant objects proximal from the horopter. Experience is necessary for the fusion center to interpret correctly single false images, crossed false images, uncrossed false images, and the differences in the amount of separation of the false images into terms of the position of the object from which the images arise.

At this point, it is well to note that for objects at long distances from the horopter, the false images become so widely separated as to be dissociated, and the fusion center is no longer able to select the corresponding images from the mass, in order to assign a position in space for a given point. For example, if fixation is at infinity, images of two objects at respective distances of eight and ten

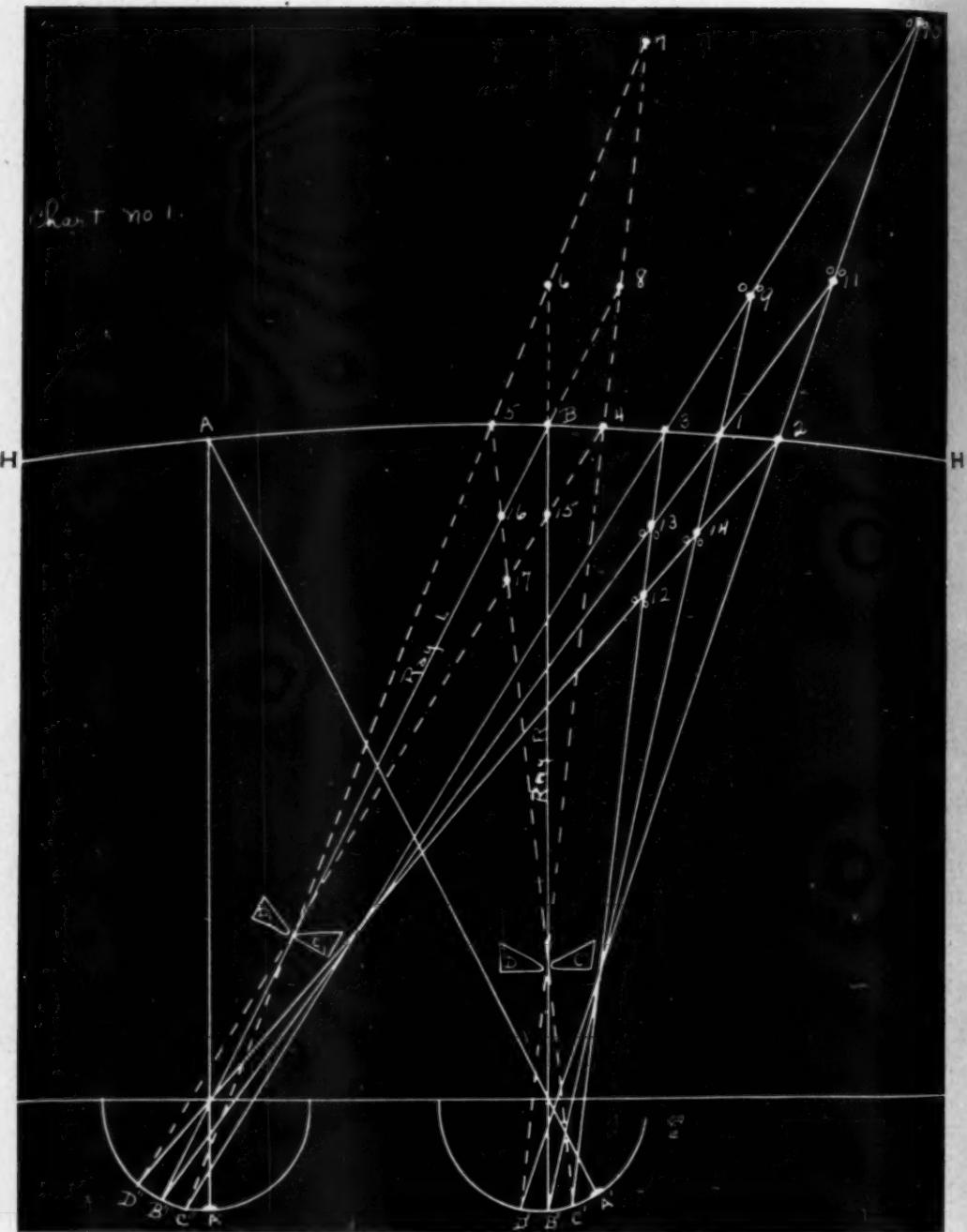


Diagram illustrating the projection of false images into the field of vision, forming crossed diplopia of points which are proximal from the horopter H H, and uncrossed diplopia of points from the horopter H H.

This diagram shows, also, the parallel effects of shifting the retinal image by changing the distance of a point from the observer and by the use of prisms for shifting the retinal image.

Chart no 2.

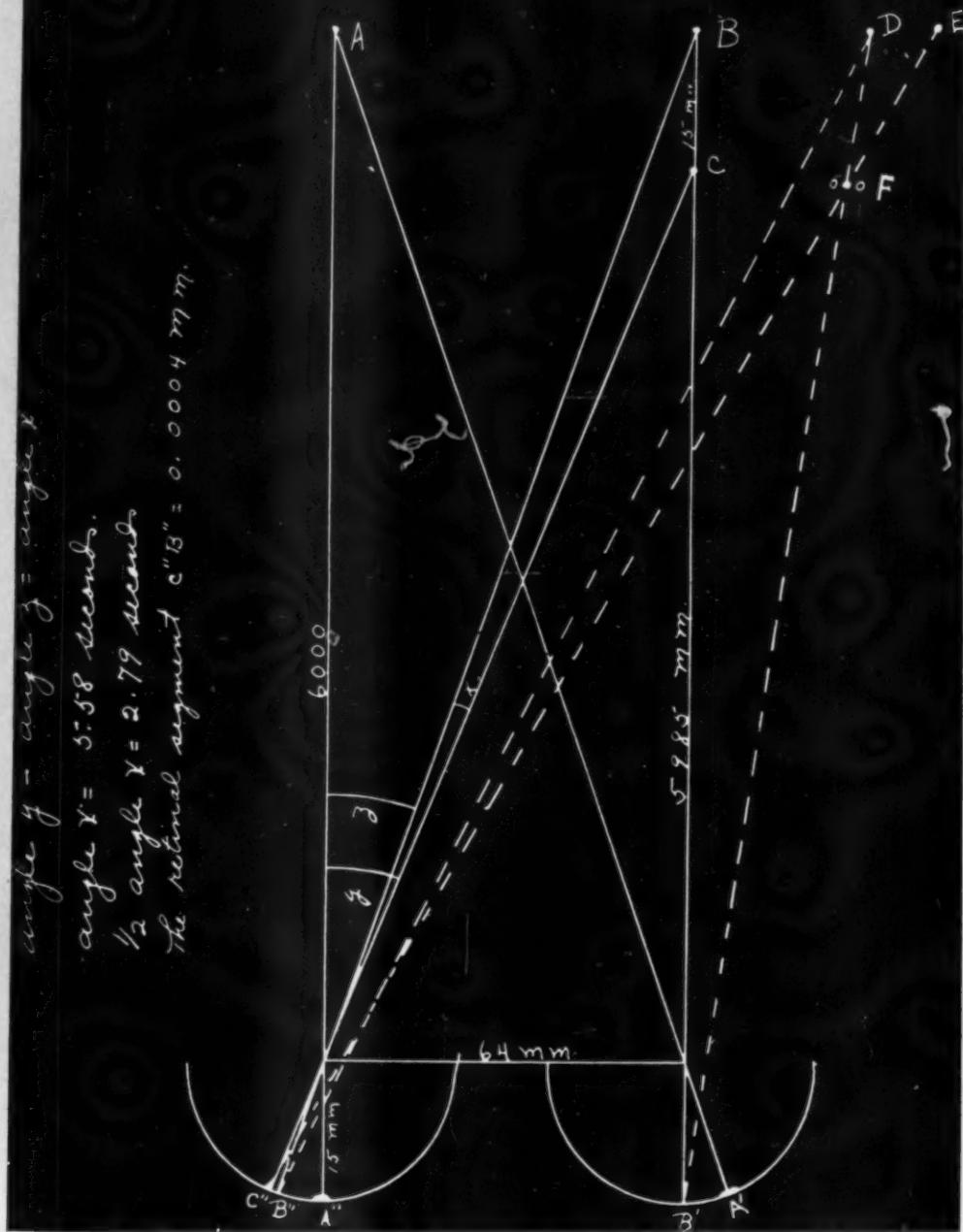


Diagram illustrating the shifting of retinal image on the retina, as the distance of the point from the observer changes.

feet from the observer become so widely separated as to be dissociated in the field of vision, and the fusion center is unable to select and to associate the corresponding images. If fixation is now changed from infinity to a point fifty feet away, the images then fall on retinal areas that can be associated by the fusion center; that is, they are brought sufficiently near corresponding retinal areas for the fusion center to select and associate a corresponding false image, and assign a position at the proper relative distance in space for the two objects.

It must be noted that when fixation is at infinity, that is when visual axes are parallel, depth differences for distant objects are accurately indicated by diplopia.

Convergence then fixes a horopter, with a zone on either side, wherein depth differences of points may be made most accurately by the type and the amplitude of diplopia of those points. In convergence, the factor of muscle sense of convergence may be used for relatively gross determinations of depth difference; but the most valuable contribution of convergence in depth perception is the establishment of a zone wherein the diplopias are most effective in accurate determination of depth differences. The act of convergence is, primarily, for increasing visual acuity by throwing images of an object upon the maculae. At the same time, convergence makes it possible to form judgment of positions of other points in the vicinity, without distraction from the point which has been fixed on the maculae.

The work on diplopia was done on the Howard-Dolman apparatus. It was found that when the subject fixed on the stationary rod, and was given flash exposures of the movable rod, he was able to detect a depth difference of fifteen millimeters in either direction. Reference to chart 2 will show the mechanism by which the depth difference was determined. Since the subject fixed constantly on

the rod A, there was no factor of the so-called parallactic angle to enter into the determination.

In the experiment the images of A fell on the maculae of A" and A'. Images of the movable rod, at the position B, fell on the corresponding retinal areas B" and B', and a single false image was projected at the point D. In no case of equipoise was a depth difference noted here. Eight cases detected a depth difference when the rod was moved in either direction a distance of fifteen millimeters. Two cases noted a depth difference when the difference was between ten and fifteen millimeters. Now with fixation at the point A, the rod at the point C formed retinal images at C" and B', which are noncorresponding retinal areas. The projected retinal images are false and crossed, and appear at the point F, which is at a less distance than the point of fixation A.

Incidentally, it is noted that there are evidently separate retinal units involved at the points B" and C". The angle X is 5.58", which is only about one-tenth the magnitude usually accepted as the minimal visual angle. Furthermore the retinal segment C"B" is 0.0004 mm. in length. This is about one-tenth the size of the microscopic measurement of the rods and cones, and about one-fiftieth the size of the retinal image usually accepted as requisite for good vision.

It must be noted that on this apparatus the convergence is by one eye. With ordinary convergence, both eyes converge; and, as can be seen from the chart, only one-half the convergence is necessary for both eyes in order to separate the retinal images of the nearer rod for diplopia. One-half the angle 5.58" equals 2.79". This angle is identical with the angle referred to formerly as the parallactic angle. The value usually accredited to the parallactic angle is the sum of the values contributed by physiologic diplopia, "specific nerve energy", muscle sense of convergence, and terrestrial association.

Associated with diplopia is another factor, "specific nerve energy", so called by the physiologist because of lack of a better name. (Refer to chart 1.) With fixation at the point A, images from the point B fall on corresponding retinal nerve endings, allowing the fusion center to fuse the false projected images at 1. The "specific nerve energy" registers that corresponding retinal nerve endings have been stimulated. A and B are then equidistant from the observer.

Now let us consider point 17. The images fall on noncorresponding retinal nerve endings at D'' and C', projecting crossed false images at 12, while the fusion center is unable to fuse the false crossed images, and the "specific nerve energy" registers retinal points of stimulation D'' and C' which are more widely separated than the corresponding retinal areas D'' and D'. The point 17 is then interpreted, by experience, to be nearer than the point of fixation.

Likewise, with fixation at A, the retinal areas D'' and C', which are stimulated by the point 17, are more widely separated than the retinal areas B'' and C', which are stimulated by the point 16. Both points are interpreted to be nearer to the subject than the point of fixation, and the point 17 is interpreted to be nearer than the point 16.

The retinal images C'' and B', from a point 6 which is at a greater distance than the point of fixation A, are less widely separated than corresponding retinal areas C'' and C'. The "specific nerve energy" registers the fact that the retinal nerve endings which were stimulated at C'' and B' are closer than corresponding retinal areas B'' and C'. The point 6 is therefore interpreted from experience to be distal from the horopter, and at a greater distance than the point A.

Likewise, the retinal images C'' and D' from the point 7 are closer than corresponding retinal areas C'' and C' and also closer than the retinal areas C'' and B'. The point 7 is then inter-

preted to be at a greater distance than the point A, and also at a greater distance than the point 6.

An experiment, showing the parallel effects from (1) the use of a prism and (2) the change of position of a point in the visual field, will demonstrate more clearly the mechanism by which diplopia and "specific nerve energy" convey to consciousness a conception of depth. Refer to chart 1.

Let A and B be placed about ten inches apart, at a distance of ten feet from the observer. (These should be white posts, one centimeter in diameter, before a dark background.) Fixation is kept upon A throughout the tests. Fixation may be shifted up and down the post A in order to shift the false images of B so as to bring them into consciousness.

With fixation at A, the rays from B fall on the corresponding retinal areas B'' and B', and a single projected false image appears at the point 1, on the horopter. The stimulated nerve endings at B'' and B' convey to consciousness the information (1) that there is a single projected false image and (2) that corresponding retinal positions have been stimulated.

If now the prism C (0.25 D.) intercepts the ray R from B to the right retina, the right retinal image is shifted from B' to C'. The noncorresponding retinal areas B'' and C' project false crossed images which appear at 13. The "specific nerve energy" conveys the information that the retinal areas B'' and C' are more widely separated than the corresponding retinal areas B'' and B'.

The same effect is produced by moving the point B along the ray L to the point 16. In both cases the false, crossed images appear at the point 13. In both cases there has been simply a shifting of the retinal image on the right retina, alone, from the area B' to the area C'.

If the prism D intercepts the ray R, the noncorresponding retinal points B'' and D' will project the false, uncrossed images at 11. The right reti-

nal image has been shifted from B' to D' and the "specific nerve energy" conveys the fact that the stimulated retinal areas B'' and D' are nearer together than corresponding retinal area B'' and B' . The same effect is produced by moving the point B along the ray L to the point 8. In both cases, the uncrossed diplopia and the "specific nerve energy" convey information by which the point 8 is determined to be farther away from the observer than the point A. In both cases the false uncrossed images appear at 11.

If the prism D_1 intercepts the ray L , the noncorresponding retinal areas D'' and B' project false crossed images which appear at 14. The same effect is produced by moving the point B along the ray R to the point 15. In both cases, there is simply a shifting of the left retinal image from the point B'' to the point D'' . The retinal areas D'' and B' are more widely separated than the corresponding retinal areas B'' and B' .

When the prism C_1 intercepts the ray L , or when the point B is moved along the ray R to the point 6, the left retinal area is shifted from B'' to C'' . Now the noncorresponding retinal areas C'' and B' are closer together than corresponding retinal areas B'' and B' ; and they project uncrossed false images which appear at 9, in both cases. The point 6 is then determined to be at a greater distance than the point of fixation.

If, at the same time that the prism C intercepts the ray R , the prism C_1 intercepts the ray L , the corresponding retinal points C'' and C' are the same distance apart as the corresponding retinal areas B'' and B' , and a single false image is projected to the point 3. The same effect is produced by moving the point B along the horopter to the point 5. In the two cases there has been an equal amount of shifting of retinal images on both retinas. The point 5 is then determined to be at the same distance as the point of fixation.

If, at the same time, the prism D intercepts the ray R , and the prism D_1 intercepts the ray L , images from B fall on the corresponding retinal areas D'' and D' . The same effect is produced by moving the point B along the horopter to the point 4. The single projected false image appears at the point 2. The point 4 is then determined to be at the same distance as the point of fixation.

However, if with fixation at the point A the prism C intercepts the ray R , and the prism D_1 intercepts the ray L , images from the point B fall on noncorresponding retinal areas D'' and C' . By the "specific nerve energy", these points D'' and C' are determined to be more widely separated than corresponding retinal points B'' and B' , and the projected images are crossed and appear at the point 12. The same effect is produced by moving the point B to the point 17. Thus the point 17 is determined to be nearer than the point of fixation.

Again, if at the same time that the prism D intercepts the ray R the prism C_1 intercepts the ray L , images from B will fall on the noncorresponding retinal areas C'' and D' , which are less widely separated than corresponding retinal areas. The same effect is produced by moving the point B to the point 7. The projected images are false, uncrossed images and appear at the point 10. Thus the point 7 is determined to be at a greater distance than the point of fixation.

The question why horizontal rods can not be used in the Howard-Dolman apparatus for testing depth perception may be answered from the above discussion as follows:

(1) Because of the dull color of the stationary rod, there is no point of fixation. The visual axes are parallel, and the factors of diplopia and specific nerve energy are effective in a more distant zone than that in which the rods are found.

(2) Even with a marker on the stationary rod for a point of fixation, images of the movable rod, in all of

its positions, stimulate corresponding retinal areas, and appear always to be at the same distance as the point of fixation.

(3) If there are markers on both rods, then we have the same effect as in the case of two points or two rods, in different vertical planes.

Conclusions

Depth perception requires (1) normal central vision (2) normal peripheral visual fields, and (3) equipoise. Of these factors equipoise and peripheral vision are of equal importance to central vision for accurate determination of depth.

The factors (1) aerial perspective, (2) size of the retinal image, and (3) terrestrial association are dependent upon external conditions for their value as aids to depth perception.

The factors (1) accommodation, (2) motion parallax, (3) convergence, and (4) diplopia depend upon internal factors for their value as aids to depth perception.

Accommodation and convergence depend upon muscle or tendon sensation, and aid only in very gross determination of depth.

Motion parallax and diplopia depend upon "specific nerve energy" for

the determination of depth differences.

The factors (1) aerial perspective, (2) size of the retinal image, (3) terrestrial association, (4) accommodation, and (5) motion parallax are common to both monocular and binocular vision.

Diplopia with convergence is peculiarly valuable in binocular vision for depth perception.

The muscle sense of convergence detects gross differences in depth. Convergence is most useful in depth perception (1) by establishing a horopter which separates crossed from uncrossed diplopia, and (2) by placing corresponding retinal areas in relative positions from which may be determined the relative positions of objects or points in the field of vision whose images fall upon these retinal areas. The positions of these retinal areas are conveyed to consciousness by "specific nerve energy".

It is this "specific nerve energy" which is of the greatest importance in depth perception. It interprets the position of the stimulated retinal areas from which the false images are projected into space. This "specific nerve energy" is studied through diplopia.

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A CASE OF MALIGNANT LYMPHOMA

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The neoplasm appeared as two rolls of grayish-pink tissue extending from inner to outer canthus, and occupying the entire lower cul-de-sac. The mass was fairly hard and was well circumscribed. At operation it was found to extend rather deeply into the orbit.

Mrs. W. J. G., aged fifty-six years, consulted the writer on September 7, 1926, with the following history. She had noticed a thickening of the left lower lid since spring. At times this swelling was very itchy and the eye teared a great deal. Also the hearing in the left ear had been bad for the past five years, and the ear felt as though there was something in it that should come out.

Examination showed the left lower lid bulged slightly forward, but no redness or edema. The lower punctum was not in apposition with the eyeball. Retraction of the lower lid disclosed the presence of what appeared like two rolls of a grayish pink tissue extending from inner to outer canthus, and occupying the entire inferior cul-de-sac (Fig. 1.) On palpation this was found

every respect, had had no reason to consult a physician for many years, and would not have come at this time but had been urged to do so by a nurse. She was unconscious of pressure by the growth.

Wassermann was negative. Blood differential showed erythrocytes negative; leucocytes 6,400; lymphocytes and small monocytoids 48; polymorphonuclears 50; eosinophiles 2. Urinalysis was negative.

Examination of the eyeball disclosed no other abnormal conditions, and the fundus and extrinsic musculature were normal.

A small section was removed from the inner canthus for biopsy, the laboratory report on which was as follows: "A dense lymphocytic accumulation beneath the epithelium. Definite opinion whether the process is inflammatory or neoplastic cannot be formed without information about clinical course and appearance".

On October 8, 1926, the patient was hospitalized and the neoplasm removed under local anesthesia. The conjunctiva overlying the growth was dissected away very easily, but it was found that the growth extended far deeper into the orbit than had been anticipated. The latter part of the operation was attended with considerable pain and hemorrhage. The conjunctival flaps were brought together by sutures and the eye dressed. The neoplasm was found to be fairly hard and about as broad anteroposteriorly as laterally. It was sent to the same laboratory, and Dr. Hektoen reported as follows: "There is an extensive accumulation of large lymphocytic cells, with distinct tendency to infiltrate the surrounding tissue. The growth is quite vascular, but the stroma is rather



Fig. 1 (Goldenburg). Photograph made after a small piece was removed from the nasal end for biopsy.

to be a fairly hard, well circumscribed mass, extending some distance into the orbit. The conjunctiva overlying the neoplasm was movable, and no evidence of any type of inflammation or injection could be seen.

Questioning the patient at great length as to the date of origin of this growth and as to her general health gave no further information than above recorded. She felt perfectly well in

delicate. The diagnosis of malignant lymphoma seems warranted, pending further examinations". (Fig. 2.)

The patient made an apparently uneventful recovery from a surgical standpoint. About a week later she complained of seeing double, which was thought to be due to a possible tissue reaction or to blood accumula-

November 16, 1926: 50 mgs. for $5\frac{1}{2}$ hours (lateral to eye at one inch). 50 mgs. for $5\frac{1}{2}$ hours (bridge over eye at one inch).

November 23, 1926: 50 mgs. for 5 hours (bridge over eye at one inch). 50 mgs. for 5 hours (lateral to eye at one inch).

November 29, 1926: 75 mgs. for 5

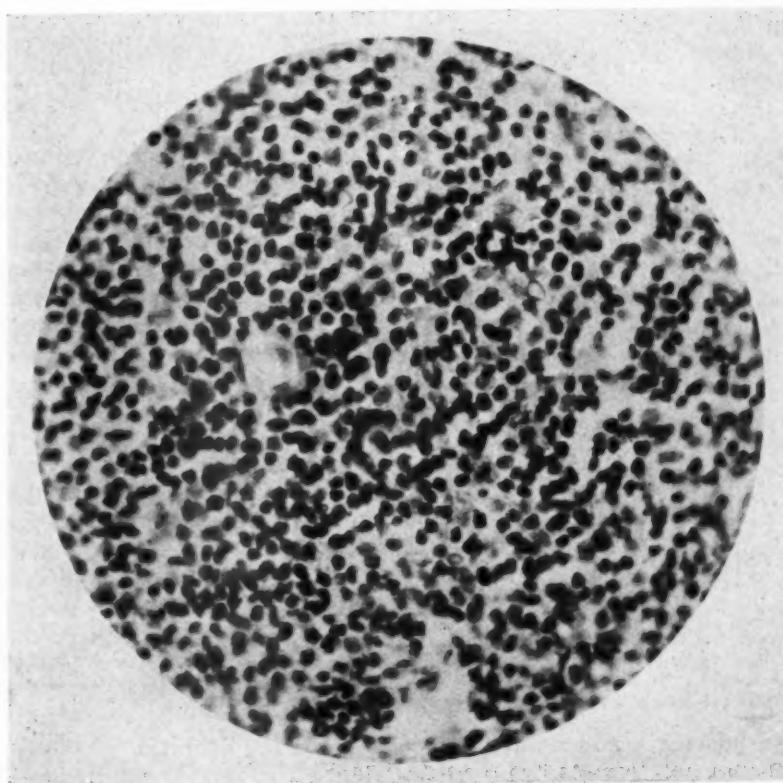


Fig. 2 (Goldenburg). Photomicrograph on which diagnosis of malignant lymphoma was based. Note vascularity and type of cells. The delicate stroma does not show up well.

tion that would soon pass off.

After considerable search of the literature, and discussion, it was decided to use radium in preference to x-ray therapy. The patient was referred to the Physicians' Radium Association, and radium was used as follows:

November 12, 1926: 50 mgs. for $2\frac{1}{2}$ hours (bridge over eye at one inch). 50 mgs. for $2\frac{1}{2}$ hours (lateral to eye at one inch).

hours (lateral to eye at one inch). 75 mgs. for 5 hours (bridge over eye at one inch).

There has been no recurrence of the neoplasm to date. The region of the operation appears normal and healthy with the exception that the conjunctiva is firmly attached to the underlying tissues.

The diplopia, however, has persisted when looking straight ahead or down.

When the eyes are strongly elevated the diplopia disappears. At rest the left eye is slightly rotated upward. The cause of this diplopia still remains an open question. It was not noted at the time of the operation, nor was there any evidence during the operation that the eye muscles were involved. A careful study of the microscopic slides discloses some fragments of muscle tissue. I am sure the muscle was not severed, in fact during the operation dissection was downward and not in the direction of the inferior rectus. The fact that muscle fragments were seen in the microscopic slide would indicate that the cellular infiltration had nevertheless extended in that direction.

Parsons (page 18-19, volume 2), quoting Hochheim, calls attention in his fourth classification to the following statement: "They are not usually encapsulated, but the neighboring muscles, etc., are infiltrated with lymphocytes". The question then arises,

was the diplopia the result of the operation per se, with scar tissue formation between the inferior rectus and the conjunctiva following this surgery. It is quite probable that a lymphocytic infiltration of the inferior rectus was present before the operation and that the subsequent radium treatment was an additional factor in the production of scar tissue.

I am more inclined to think that adhesions between the inferior rectus and the operative field have taken place, thus impairing the function of the inferior rectus.

In view of the pathologic findings it was deemed more prudent to permit some time to elapse before again attempting surgery in this field. Some consideration was given to the idea of operating on the opposing muscle, but the patient became irritable and has probably sought relief elsewhere.

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SUBCONJUNCTIVAL INJECTIONS OF ATROPIN AND ADRENALIN IN IRIDOCYCLITIS

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Four minims of adrenalin one to one thousand, with one minim of two per cent atropin sulphate solution, is injected beneath the conjunctiva with a hypodermic syringe, near the location of the synechiae which it is desired to break up.

The cases of iritis and iridocyclitis which lend themselves moderately well to the usual methods of treatment do not give us much concern beyond the etiological puzzle they usually present. If seen early they may usually be held in check by repeated instillations of atropin, rest (with the occasional supplemental bandage), and an immediate search for the causal factor with its remedy or removal whenever possible. Many cases, however, give us pause for several reasons. They may be seen late, after the development of heavy synechiae; they may recur with very short intervals; they may run a protracted course which responds to

none of the ordinary methods of treatment; and lastly, but by no means of least importance, there may be an accompanying rise in tension from the continued use of atropin or from the products of disintegration blocking the drainage angle.

The hypotonic effect of subconjunctival injection of adrenalin, with an accompanying mydriasis, suggested the use of this drug in iridocyclitis with increased tension. I had not heard of a similar use of this method until Rodin¹ gave a full account of this method in 1926. I was delighted to see that the method had gained favor elsewhere, and after Rodin's favorable

reports I persisted in this treatment with all types of iridocyclitis which did not respond immediately to instillations.

The technique employed is very similar to that described by Rodin. The injection is done without instruments, except a fine syringe with a small hypodermic needle. After the instillation of five drops of one per cent holocain solution, the operator's fingers are used to manipulate the lids. The patient, by looking as directed, places the eyeball in the various positions for the injection. Injections are made as near the limbus as possible, near the adhesions to be broken.

Rodin recommends the injection of 2.5 minimis of four per cent atropin and 2.5 minimis of adrenalin 1 to 1000. I have found that more adrenalin and less atropin are more efficacious and less likely to produce signs of generalized atropin disturbance. The injection of four minimis of adrenalin and one minim of two per cent atropin usually dilates the pupil ad maximum without any particularly distressing symptoms, with the exception of local pain which persists for about an hour and very occasionally some nervous manifestations from absorption of the adrenalin. The action of atropin may be increased by repeated placing of two per cent ointment in the conjunctival sac.

The procedure accepted depends upon the type and complications stated above. If the attack is not controlled fairly easily by ordinary methods, an injection is given. The pupil, if moderately dilated before, quickly widens, and often synechiae may be seen to break while the patient is being observed directly after the injection. There is often a bit of pain for a while, caused by the tugging iris, but com-

fort follows with a temporarily whitened eye and a dilated pupil. This method seems to give the eye a chance to regain some resistance by decreasing the amount of toxin for the time.

It would appear from the added action of adrenalin that this drug performs the service of a synergist with atropin. By its action it is, to my mind, a most logical drug to use for the purpose herein stated. While atropin paralyzes the third nerve endings and allows the constrictor pupillæ to relax, adrenalin aids by stimulation of the dilatator and enhances the effect of paralysis. If synechiae are formed the pupil merely hangs, so to speak, by the adhesion, and further atropin cannot effect a breaking, but the added active dilatation by adrenalin forces the pupil to dilate more.

There is probably an added action here which may be in the nature of decreasing the permeability of the ocular blood vessels by constriction, thereby lessening the volume of the blood brought to the eye. This would tend to add to the effect of atropin as described by Adler.² With the action of two drugs so constricting and reducing the supply of active toxic products, dionin is probably contraindicated, as Langdon³ remarked in a discussion upon the subject. Dionin is a most effective drug if used at the proper time, and that is probably after the acute stage has subsided and products of destruction are left. Quieting and allaying inflammation by reducing the causal toxins probably tends more to minimize the consequent destruction than to use dionin at such a time and flood the eye with these products in the vain hope of increasing the circulation to carry them off.

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NOTES, CASES, INSTRUMENTS

OPTIC ATROPHY FOLLOWING ALCOHOL INJECTIONS*

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The following case of optic atrophy is of such unusual etiology as to warrant reporting it.

S. L., 36 years, was seen in the clinic in December, 1926. He had had a great deal of difficulty because of a persistent asthma which had been unsuccessfully treated by a number of physicians. Upon hearing of a doctor in another community who successfully treated asthma with alcohol injections, he went to this doctor's office for the treatment. One week previous to entry, he had been given an alcohol injection in the nose on the right side. At the time of this procedure, there was a flash of light in the right eye followed by immediate blindness of that eye. In addition, the lid was closed, the motion of the eye was limited, and the pupil was widely dilated. Under "electric" treatments, the drooping of the lid had improved but the right eye had remained blind.

Examination: R. E. vision amaurosis; L. E. vision 1.0. Right eye: partial ptosis with some paresis of superior, external, and internal recti muscles; pupil widely dilated and fixed; fundus negative. Left eye: external examination and fundus negative.

Report of otorhinolaryngology clinic: Small area about four mm. in diameter in right upper posterior ethmoid cell which bleeds on pressure, the mucous membrane having been broken. If this is the injection site the condition is explained. Examination shows no puncture at the usual site of injection of the sphenopalatine ganglion.

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At the end of one month, the paresis of the external ocular muscles had entirely disappeared. The pupil was normal in size and reacted consensually. The fundus at this time showed a beginning primary optic atrophy. The atrophy gradually progressed to a complete primary optic atrophy.

The assumption in this case is that an attempt was made to inject the sphenopalatine ganglion and that the point of injection was in the posterior ethmoid cell instead of the usual site. Apparently the injection was made directly into the optic nerve, with some of the alcohol also involving surrounding structures.

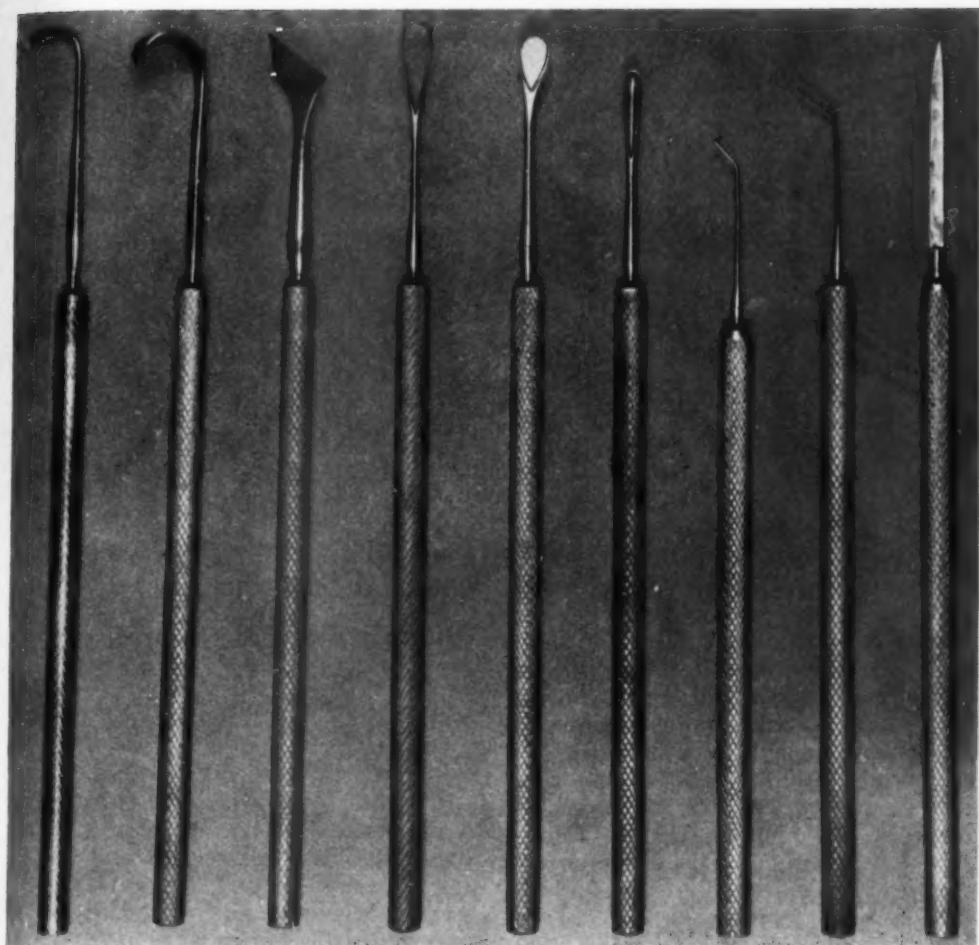
Fitzhugh building.

INSTRUMENTS FOR CATARACT OPERATIONS: (1) CYLINDRICAL HANDLES; (2) MATCHED OR RELATED INSTRUMENTS

DANIEL B. KIRBY, M.D., F.A.C.S.
NEW YORK CITY

Cylindrical handles for instruments for cataract operations

In studying out the technique of the use of the iris retractor, it was found that the flattened or squared handles did not lend themselves to an easy adjustment for all positions. It was thought that a cylindrical handle would make possible the finest adjustments, being controlled with the thumb, forefinger, and second finger. A five mm. diamond knurl, round or cylindrical handle was devised by the author for the iris retractor. It proved to be of value for the technique desired. While the flat or square handle often required an entire readjustment of the hand to suit the instrument, the round or cylindrical handle was easily adjusted to suit the hand in its most natural position. Undoubtedly, cylindrical or round handles have been used before in cataract surgery.



(Kirby.) Matched or related instruments, with cylindrical handles, for cataract operations. Three-fourths natural size.

Matched or related instruments for cataract operations

It seemed that it would be a great advantage if the same handle were had for all the instruments used in any operation requiring skill and delicacy of movement. If every instrument had precisely the same feel, the same grip, length, weight, size, and balance, it would not be necessary to make repeated adjustments because of differences in these factors in instruments successively used in a cataract operation.

Accordingly, the Graefe knife, keratome, cystotome, lens spoon and loop, lid retractor, hook, and iris repositor were designed with matched or re-

lated diamond knurl, round or cylindrical handles.

Note: Dr. John M. Wheeler designed a cylindrical handle for the cystotome which he devised. It was while studying under his direction that the author devised these new instruments. The matched or related instruments have been very satisfactory in practice. They were made according to the author's design by the E. B. Meyrowitz Company.*

30 West Fifty-ninth street.

* These instruments were presented at the 1928 meeting of the American Academy of Ophthalmology and Otolaryngology, and a description of them will be found in the 1928 Transactions of the Academy.

BILATERAL CATARACT FOLLOWING THYROIDECTOMY

JAMES E. REEDER, M.D., F.A.C.S.
SIOUX CITY, IOWA

Up to the present the literature, so far as I have been able to discover, shows thirty-seven cases of cataract following thyroidectomy, the patients ranging in age from twenty-nine to fifty years.

Case report: Mrs. J.W., aged forty years, occupation, housewife.

Previous history: Never robust during childhood. Anemic and underweight. Usual childhood diseases, no complications. Menstruated at the age of fourteen, severe menstrual pain until after the birth of her first child. Married at the age of twenty-four years, three normal children, four miscarriages (induced). In the spring of 1920 patient states she developed an extreme nervousness and rapid heart action with gradual loss in weight. November, 1920, in one of our large clinics, patient had complete removal of her thyroid. Following this her general condition improved greatly, with the exception that a few days after the operation she developed spasms of both upper and lower extremities of a low grade type which were arrested by large doses of calcium lactate and parathyroid gland. She was given this at intervals over a period of a year. Her tetany practically disappeared about six months after the thyroidectomy.

Present history: Patient noticed diminution of vision in both eyes. May 20, 1922, vision O.D. 20/200, O.S. 20/200. Externally normal. Tension normal with fingers. Both lenses show a well advanced cortical cataract. Fundi can not be made out on account of lens opacity, although a good red reflex is seen. June 1, 1922, combined extraction right eye with capsulotomy. Uneventful recovery. July 22, 1922, discussion right eye. March 19, 1923, combined extraction left eye with capsulotomy. April 29, 1923, discussion left eye. June 1, 1923, accepts right

eye plus 10.00 sphere combined with plus 2.00 cylinder axis 130° equals 20/40—1, left plus 10.00 sphere combined with plus 2.00 cylinder axis 15° equals 20/30.

Two other cases of bilateral cataract developing in postoperative tetany were found in the records. The factors responsible for these lens changes may well be given closer consideration by those who encounter such postoperative complications. Cataracts have developed in a very low-grade form of tetany.

With a few exceptions, the thirty-seven cases reported were given calcium, with restriction of the protein intake, and with few attempts at replacement therapy.

Davidson building.

AN IMPROVED RETINOSCOPE*

GEORGE H. CROSS, M.D.
CHESTER, PENNSYLVANIA

Dissatisfaction with my own ability to see the pupillary shadow on the retina sharply and clearly, induced me at first to add a plus one sphere to my distant correction and to wear such a pair of glasses only for retinoscopic work. This changing of glasses was a trouble and a nuisance, so while examining an ordinary retinoscope the idea was evolved that the plus one lens could be made a permanent part of the retinoscope and thus give one the pleasure and comfort of seeing clearly without making the apparatus at all cumbersome. The general idea may have occurred to others, but those to whom the thought is new may be interested in the following description.

The improvement in the retinoscope consists in the addition of a plus one lens, such as is used in the Loring ophthalmoscope, situated in a circular well drilled in the main plate of the instrument directly over the hole in

* Read before the Section on Ophthalmology of the College of Physicians of Philadelphia, November 15, 1928.

the plate and under the mirror. No extra ring or clamp is necessary to hold the lens in place, this being accomplished when the mirror is fastened

shadow on the retina sharply and clearly, so to have the best possible idea of its various movements.

The improvement can very easily be



(Cross.) Retinoscope adapted for presbyopic examiner (shown in cross section).

to the base plate. It is practically impossible to scratch or break the lens thus fully protected on both sides.

This modification of the retinoscope will prove of great benefit and comfort to most refractionists past forty years of age who desire to see the pupillary

incorporated in the various electric retinoscopes as well as in this hand retinoscope. I am indebted to Messrs. McIntire, Magee, and Brown for their aid in the mechanical construction of the instrument here shown.

525 Welsh street.

SOCIETY PROCEEDINGS

EDITED BY DR. LAWRENCE T. POST

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA

Section of Ophthalmology and Otolaryngology

October 19, 1928

DR. WALTER A. WELLS, chairman

Four unusual cases of convergent squint

DR. W.M. T. DAVIS reported the case of a girl, fifteen years of age, with left convergent squint of ten years standing. She had been wearing glasses with which the eyes were parallel. O.D. vision was 20/15; O.S. 20/40. Without glasses the following conditions obtained: Vision each eye was 20/200 and the eyes remained straight in distant vision. If, however, she wished to read or see clearly she used her accommodation, and the left eye was then 20/15, and she read Jaeger 1 with O.D. In order to avoid diplopia she closed her left eye. This patient might be said to have a periodic squint in that she squinted only when she used her accommodation, which was under control and could be used at will. There was 5.50 diopters of hypermetropia. This case was op-

erated on and put on stereoscopic and other exercises. The result after two or three months was binocular single vision. There was some difficulty in her learning to use the accommodation automatically, as she had been using it voluntarily for a long time.

Dr. Davis reported a second case, of a child who had been treated with glasses and exercises from the age of thirty months to seven years. At that time she had an alternating convergent squint with 20/30 vision in each eye. After operation the child insisted that she could not see without her glasses. She had 5.25 diopters of hypermetropia and apparently no accommodation and yet could read with her glasses. The eyes remained straight. Dr. Davis questioned whether this child would have squinted if she had made the effort to accommodate.

The third case was that of a girl eight years of age, who had 5.50 diopters of hypermetropia and a right convergent squint. No squint was present without glasses, and her vision was 15/200 in each eye as long as

she did not accommodate. If, however, she wished to see clearly she used her accommodation and the squint returned. This patient was neurotic and cooperation was poor.

Dr. Davis reported a fourth case with an alternating convergent squint at three years of age, which with the use of glasses and orthoptic exercises developed third degree fusion with only occasional squinting for a year. This child had voluntary accommodation.

Visual requirements for motor operators

DR. E. R. GOOKIN read a paper covering his investigations into the visual requirements for motor operators throughout the United States. The results were as follows: Most of the southern and midwestern states required no license to operate a motor vehicle. Only sixteen states and the District of Columbia required a license. Twelve of those requiring a license demanded some kind of visual test. No state in the Union required a visual test by an oculist. In those states which required tests, the examinations were in complete control of the optometrists.

Discussion. DR. LOUIS S. GREENE said that until it became universal the visual test would not be effective. He felt that the visual fields were more important than the acuity tests.

Possible frontal lobe tumor

DR. G. VICTOR SIMPSON discussed the ocular phenomena and concomitant signs that were of diagnostic value in lesions of the frontal lobe. He reported the case of Mrs. F., an Italian aged 24 years. Family and past history were unimportant. She was first treated at the Episcopal Hospital in June, 1924. At this time she complained of severe temporal and occipital headaches and secretion from the right eye. An extirpation of the right lacrimal sac was performed. O.D.V. equalled 20/70; O.S.V. 20/20—.

She again appeared in June, 1927, at which time she complained of continued headaches and continued loss of vision in the left eye. O.D. vision equalled 20/20 with correction; O.S. light perception in lower nasal field only. The right eye was active to light; pupil dilated regularly with homatropin; media were clear; ophthalmoscopic examination revealed an atrophy of the upper nasal quadrant of the optic nerve and an area of edema of the nervehead limited to the lower temporal quadrant with a few small areas of exudate into the adjacent retina. Throughout the retina were numerous small discreet fluffy areas of retinitis which gave the appearance of miliary tubercles.

The pupil of the left eye reacted sluggishly to light, but dilated regularly. The media were clear. Primary optic atrophy was present and areas of retinitis similar to those in the right eye. The field of the right eye showed a defect corresponding to the atrophic quadrant of the nerve. No field was obtained for the left eye.

Important data of complete examination showed pansinusitis, positive intracutaneous tuberculin to 0.1 mg., two infected teeth which were later removed, negative blood Wassermann, and negative x-ray of the skull. There was little change for a few months. Tuberculin therapy was instituted and a radical sinus operation was performed.

In February, 1928, it was definitely determined that the edema of the right nervehead was advancing so as to involve the circumference of the disc except the atrophic nasal quadrant. The patient was again subjected to a complete survey, which revealed the following: scanty irregular menstruation during past eighteen months with periods of amenorrhea, slight gain in weight, passage of large amounts of urine of low specific gravity without albumin sugar or casts, increased thirst, normal or slightly increased sugar tolerance, blood and spinal fluid

Wassermann negative, spinal fluid under increased pressure, cell count normal, faintly positive globulin, blood chemistry normal. Vision O.D. equalled 20/30. There were choked disc, temporal field defect, retinitis. Vision O.S. equalled light perception in lower nasal field only. There were retinitis and optic atrophy.

The ocular phenomena, normal pituitary fossa, and spinal fluid under pressure were compatible with the diagnosis of basal frontal lobe tumor. The hypopituitary state might be explained by pressure. The retinitis was hardly to be explained unless the nature of the new growth allowed of focal retinitis.

Discussion. DR. W. T. DAVIS suggested that it might be a tuberculoma since the patient had reacted very unfavorably to tuberculin therapy.

DR. E. R. GOOKIN agreed that tuberculoma was a probable diagnosis and that she should be treated as a case of tuberculosis.

DR. OSCAR WILKINSON asked about focal, local, and general reactions to tuberculin, and suggested that tuberculin therapy was especially indicated in this case. He said the patient was entitled to an exploratory operation if she did not improve.

DR. LEROY W. HYDE said he had seen the patient with Dr. Simpson and thought the retinitis was tuberculous, and he thought tuberculin therapy was indicated.

DR. SIMPSON said that Dr. Harry Kerr thought a ventriculogram should be made if the condition did not improve.

J. N. GREEAR, JR.,
Secretary

CHICAGO OPHTHALMOLOGI- CAL SOCIETY

October 22, 1928

DR. GEORGE F. SUKER, president

Avulsion of optic nerve

DR. C. W. PIPER presented the case of a man who had been struck below the

left eye three years previously. Three days after the injury a specialist told him that the vessels were ruptured. Vision was gone and the eye was turned about thirty-five degrees inward. External appearance was normal. There was no reaction to light. A large white area was seen in the lower half of the optic nerve, below which was a mass which moved slightly with movements of the eyeball, showing a definite attachment to underlying structures. The retinal vessels appeared normal.

Optic atrophy

DR. BEULAH CUSHMAN reported the case of a twelve year old girl whose vision in the right eye was 2/200, left eye 1/200. Both discs were white, the vessels attenuated. The possible cause was meningitis in infancy. Because of thymic enlargement, x-ray treatment of this gland and thyroid and calcium medication were employed, with possibly some improvement.

Foreign body in iris

DR. BEULAH CUSHMAN presented a thirty-four year old woman, from the lower half of whose iris she had removed a 1 by 2 by 3 mm. piece of glass. The eye had been quiet for four months, following the original injury, and had become quiet again promptly after operation.

Bilateral congenital cataract in an infant

DR. N. K. LAZAR showed a white infant, twelve months old, on whom a V-shaped incision had been done in each eye, followed by needling one month later. The pupils now appeared clear, and the fundi were also apparently clear. The baby now followed objects with her eyes. Before operation tension had been noted as normal and Wassermann negative.

Extraction of vitreous with replacement by saline, in a diabetic

DR. SUKER showed a patient, twenty years of age, who had been before the

Society last year, and had been under observation by Dr. Suker since October, 1925. Injury to the right eye about three years previously had necessitated enucleation, and a few days prior to entrance the patient had been struck in the left eye with a piece of wood, resulting in plastic iritis. An iridectomy was done about two months later, followed by extraction of the lens. Dr. Suker had extracted vitreous from the eye four times, replacing it with saline. Vision was fingers at three or four feet, with correction to 20/65.

Unilateral ophthalmoplegia and optic atrophy

DR. LAZAR also presented a forty-two year old colored man who had paralysis of all the muscles of the left eye except the external rectus, and apparent paresis of the superior oblique. There was ptosis of the left upper lid, and proptosis of the eyeball downward and to the left. The pupil was fixed and there was no vision. Fundus examination revealed descending optic atrophy. Blood Wassermann was four plus; spinal Wassermann negative. Mitral and aortic heart disease was found. It was concluded that the patient had a luetic basal meningitis together with a nuclear involvement.

Bilateral anophthalmos

DR. LAZAR also presented this case in a child two years old. X-ray, general physical, and laboratory examinations were negative. The lids were normal, as were the orbits. Dr. Fitzgerald had opened the right orbit but had found only some orbital fat.

Peripheral iridectomy

DR. W. A. FISHER described two cases in which after extraction of the lens peripheral iridectomies were performed, and one case of peripheral iridectomy in glaucoma simplex. The preformed conjunctival flap was closed by tying sutures previously inserted. In complicated cases atropine should

be instilled on the second day and injections of blood or milk made just after operation.

Coloboma of the lens: hydrophthalmos

DR. A. J. ST. GERMAIN showed a colored boy, five years old, whose mother had first noticed enlargement of the right eye when he was four months old. There was uniform enlargement of the right eye (keratoglobus), this eye protruding six millimeters more than the other, and the cornea being five millimeters larger in diameter. Tension was sixty millimeters; anterior chamber unusually deep and papilla deeply excavated. The eye was myopic and the choroidal vessels very prominent. Ordinarily the lens did not enlarge in hydrophthalmos, but in this case it was exceptionally large and showed an arc-like defect in the lower part, involving one-fifth of the circumference. There was no associated coloboma of iris or choroid. The left eye was normal.

Hemorrhage into optic nerve sheath?

DR. ST. GERMAIN also showed a boy seventeen years old, who had suffered an injury to the skull while playing baseball, after which he was unconscious for thirty minutes. The following day he was blind except for faint light perception in the right eye. X-ray failed to reveal fracture of skull or orbit. Spinal fluid was not bloody. Examination of the eye was negative except for some ecchymosis of the lids and subconjunctival hemorrhage on the temporal side. The pupil failed to react to light but did react to consensual stimulation. After five weeks vision had improved to fingers at one foot. The disc was slightly pale.

Primary optic nerve atrophy associated with glaucoma simplex

DR. ST. GERMAIN said that this patient, fifty years of age, had had poor vision for thirty years, with gradual com-

plete loss of vision during the past three years. Clinically the case presented neurological findings of taboparesis, even though the spinal fluid Wassermann was negative. There was definite bilateral optic nerve atrophy, and cupping of both discs.

Discussion. DR. GEORGE F. SUKER said this case was interesting because of the peculiar condition connected with the glaucoma. This came under Elschnig's second type, "glaucoma with compensation"—no corneal changes, atrophy of iris, or pupillary dilatation, but disc excavation and changes associated with continued increased tension. No doubt the vessel sclerosis at the disc played an etiologic part in the causation of the glaucoma.

Pseudoglioma

DR. ST. GERMAIN also showed a child whose eyes had become crossed following convulsions at the age of three months. At present there was no vision in the right eye, which was smaller than the left. Nystagmus was to be seen when looking to the left. There was limited movement of the eye upward and laterally. There was no pupillary reaction to light but consensual reaction was present. The iris was atrophic and the lens was dislocated posteriorly and contained opacities. With the slit lamp the fibers of the zonule of Zinn could be seen throughout the entire periphery. Internal strabismus of twenty degrees was noted. Pseudoglioma had been diagnosed several years before opacities of the lens were seen. The left eye was normal.

Discussion. DR. SUKER said that this little girl was first seen at the age of one year, and was now eight and a half years old. She would have the same sized eye the balance of her life. All pseudogliomatous eyes underwent a so-called essential shrinking up to a certain stage and then remained without change.

Blastomycosis

DR. C. O. SCHNEIDER presented a man of twenty years, who had a skin lesion on the left side of the face, extending from the lower lid margin downward and about five centimeters in diameter. There were cauliflower-like elevations and raw abscess-like depressions exuding pus. The patient had already been under treatment for several months in a prominent skin clinic. Dr. Lebensohn at the Illinois Eye and Ear Infirmary had suggested a microscopic examination, which revealed the presence of a yeast-like budding organism.

Vernal catarrh

DR. ELIAS SELINGER presented two cases which showed marked eosinophilia in scrapings of the conjunctiva. Onset had been similar to an acute conjunctivitis. One patient had complained especially in summer and the other was subject to hay fever and sensitive to ragweed and other pollens. Four radium treatments had relieved symptoms in each case but thus far had produced no objective improvement.

Angiomatosis retinæ and its relation to angiomatosis of the central nervous system

DR. PERCIVAL BAILEY read a paper on this subject which consisted of a short historical sketch of Hippel's disease, its pathology, symptomatology, and complications, tending to show that the essential lesion was capillary hemangioma. The pathology and symptomatology of hemangiomas of the central nervous system were then discussed, together with a description of the brilliant discovery of Lindau, which had resulted in the establishment of a pathological complex now referred to in the German literature as "Lindau's disease", and consisting essentially of hemangioma of the retina and of the cerebellum together with cystic pancreas and other somatic lesions. A lantern slide demonstration accompanied the paper.

Discussion. DR. R. H. JAFFÉ said that the explanation given by Arvid Lindau for certain forms of cystic tumors of the cerebellum, namely that they were hemangiomas, was at first glance surprising, since the vascular nature of a tumor of this kind was usually apparent macroscopically. Here, however, one had a thin-walled cyst filled with a slightly xanthochromatic fluid, and only by very careful microscopic examination of the wall of the cyst, as first pointed out by Lindau and presented tonight by Dr. Bailey, could its vascular origin be detected. The formation of the cavity was secondary, resulting from regressive changes and from a transudation of fluid from the newly formed blood vessels. In determining the rôle played by the blood vessels in building up a tumor, considerable difficulty was sometimes met with. Any new growth of tissue was associated with a new formation of blood vessels; also in a tumor which did not arise from the blood vessels there was sometimes an ample vascular supply; furthermore, inflammatory tissue reactions were often characterized by an abundant capillary network. It was therefore not surprising that up to the present time the nature of the rare condition named Hippel's disease had remained a matter of discussion. While most investigators now agreed that it was a true tumor of the retina, the difference of opinion centered about the question whether the proliferation of the capillaries or of the glia was the primary condition. Lindau's discovery of the frequent association of angiomas of the retina with angiomas of the cerebellum lent strong support to the conception that the blood capillaries of the retina proliferated first and that the increase of the glia was only a reactive phenomenon. Multiple hemangiomas of different organs had been known since Rokitansky and Virchow.

DR. RICHARD GAMBLE said that the interest of ophthalmologists in this subject dated back to 1904, when Hippel

presented the first recognized case before the Heidelberg congress. Angiomas in the retina had been observed in approximately fifty persons, rarely in both eyes of the same person, occasionally in one eye each of two persons of the same family, and usually in young adults, although a few had been recorded in infants and in elderly persons. The characteristic fundus picture in early cases was an elevated mass in the retina, either yellow, white, or red, to which at least one long tortuous artery and vein ran. Such arteries and veins might be similar in size, color and tortuosity, but could be traced back to their parent stem and so identified. The artery might be beaded; the mass itself might be clearly defined like a button or, as was usually the case, irregular, hazy in outline, and its size and shape obscured by adjacent retinal detachments, hemorrhages, or white exudates. Changes occurred slowly, but after a time the mass became much larger, invading and destroying adjacent structures. Massive retinal detachment occurred, perhaps massive hemorrhages into the retina and vitreous, and secondary cataract. Iridocyclitis and glaucoma caused the eye to become blind and painful. Pathological examination of the eye at this stage showed the interior of the globe filled largely with retinal tissue thickened by capillary angiomatic growth, cystic degeneration, proliferated glia, hemorrhages in various stages of degeneration and absorption, masses of leucocytes, and cholesterol crystals. Bone formation of choroid, retina, and vitreous was common.

With these facts it would seem most rational to regard the condition as one in which a capillary hemangioma developed in the retina and the subsequent changes were due to increase in size of the mass, plus hemorrhages. The sequelæ of such a condition occurring within the more or less closed space within the sclera, among the delicate structures of the eye, were far more serious than simi-

lar changes in the visceral organs or skin and probably somewhat more serious than similar changes in brain or spinal cord. The exudative retinitis of Coats occurred as a rule in older persons. The appearance of the fundus might be quite similar, but usually there were more retinal hemorrhages and changes in the vessels were more diffused. The sequelae were the same. Pathological examination would show tremendous thickening of the retina, with cystic spaces, proliferation of glia, hemorrhages in the outer layer of the retina with invasion of leucocytes and formation of cholesterol crystals, and hyaline degeneration of the arteries, which last was probably the cause of the condition.

DR. ALBERT B. YUDELSON said it was generally accepted that angiomas were developmental defects, just as were pigmented growths. They appeared most frequently at birth, and less often at puberty. He quoted statistics showing the distribution of these tumors, which involved almost every body tissue. Histologically, hemangiomas occurred in vessels of the pre-capillary stage, occupying the wall of the blood vessel—endothelium and muscularis. This vascular type was known as racemose hemangioma. When occurring in the lymph spaces it was called cavernous hemangioma. They were not primarily malignant growths, but, like pigmented moles, they might undergo malignant transformation, or produce atrophy of the tissue immediately surrounding them.

DR. E. V. L. BROWN said that a publication by Knape (Archiv für Augenheilkunde, volume 60, pages 49-57, 1907) had escaped notice in both the 1927 Lindau paper and the 1928 article by Cushing and Bailey, which bore on the question of the angiomas or glial nature of the condition. There was a good colored drawing depicting a typical Hippel's-disease fundus, and a low power sketch showing a classical glioma retinae, and, insofar, supporting Meller's contention

as to the glial structure of Hippel's disease.

DR. PETER KRONFELD quoted a case reported by Meller in which there was a proliferation of glial cells and glial fibers only. Meller had therefore substantiated his opinion of the gliomatous origin of Hippel's disease of the retina. Dr. Bailey had suggested, on seeing some of Meller's sections and pictures, that some of the nuclei of the smallest tumors might be endothelial cells and that a Bielschowsky staining probably would show fibers of connective tissue. This suggestion would be followed out, though he himself did not think there were any mesenchymatous elements in these small tumors. For further study of early stages of this disease the periphery of the eyeground should always be examined as carefully as possible, making use of the prismatic effect of a strong lens. All cases of choked disc due to cerebral tumor should be examined very carefully pathologically, even though ophthalmoscopic examination did not show anything.

DR. PERCIVAL BAILEY, closing, said that in the first place these cysts rarely had clear fluid. It was always xanthochromic to some extent and very often clotted on standing. The fluid was examined by Dr. Berglund of Harvard and found to have the composition of blood serum. Embryonic blood cells were not found in the tumors, in the two fresh cases which were examined. The tumors probably arose from very early mesodermal tissue. Generalized telangiectasis of the skin was not commonly associated with Lindau's disease. He had not read the article referred to by Dr. Brown. Angioma of the skin might be associated with a racemose angioma of the pia mater or with multiple telangiectases of the brain, but not usually with Lindau's disease. Generalized telangiectatic nodules were described years ago by Osler, who called attention to the familial tendency of the disorder. Dr. Bassoe had mentioned tumors of the third

and fourth ventricle. It was difficult to distinguish these clinically, and perhaps one of the commonest mistakes in a neurosurgical clinic was to operate on the cerebellum for tumor of the third ventricle. Angiomatosis of the retina was only one of the causes of Coats's retinitis: that was Coats's original idea, abandoned when he presented his work in German.

Concerning the work of Meller: When these tumors of the brain were first studied they were called gliomas by perfectly competent pathologists, and that was an easy mistake to make. On closer scrutiny, however, it was possible to differentiate them from certain gliomas which resembled them closely. When one became familiar with a certain lesion it became easy to recognize it from a simple hematoxylin and eosin section, but certainly specific staining methods made easier the discovery of new types of lesion previously overlooked. From the section of Meller's tumor which Dr. Kronfeld had shown him (which was through the periphery of the lesion) it was evident that the drawings accompanying Meller's article were not accurate. Many of the nuclei were typically mesodermal in structure. When a new subject was under investigation all the most delicate methods available should be used in the investigation. There were methods of differentiation between glia and mesoderm which doubtless Dr. Kronfeld and others would use when they knew that the question of differentiation was disputed in these cases.

Demonstration of contact glass for keratoconus

DR. ROBERT VON DER HEYDT said that by the use of the Zeiss contact glass worn under the eyelids, the lowering of vision due to optical distortion of the cornea in keratoconus was entirely eliminated, although the impairment due to the usually slight superficial scar formation remained. Hence

came the astounding betterment in visual acuity. Usually the same contact glass gave identical results in either eye. The trial set of planos came in four different elevations of arch. The vision was corrected by spheres held in front of the eye. This spherical correction was then incorporated in the glass to be made for the patient. Dr. Von der Heydt had devised and now demonstrated a simple small silver gauge on the order of a tonometer to measure the height of the cone. The necessity of trying all four of the trial contact lenses was thus avoided. The lenses could be inserted with the face under water or by means of a simple apparatus as designed by Dr. O'Rourke of Denver.

Contact glasses for keratoconus had been successfully used in Europe for many years. Dr. Blaauw of Buffalo fitted the first case in this country in 1925. Of the six patients with keratoconus seen by Dr. Von der Heydt in the past two years, four were sufficiently advanced to be greatly helped by a contact glass. The patient shown was a young man aged twenty-seven years, with keratoconus in both eyes. His vision of 4/200 was brought up to 20/30+ with this glass. He was wearing it eight to ten hours at a time without discomfort.

ROBERT VON DER HEYDT,
Corresponding Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY

October 27, 1928

DR. E. M. MARBOURG presiding

Bilateral optic neuritis

DR. JAMES M. PATTERSON showed Mr. J. R., who had had failing vision in both eyes for the past eight months. There was a history of a chancre in 1914, followed by antiluetic treatment. The patient had a daughter seven years old, whose blood Wassermann was negative. Three days prior to the time he noticed failing vi-

sion, he had drunk some "booze", which was followed by a severe headache of three days duration. He had been a heavy drinker up to January, 1928, when he had contracted pneumonia. On October 26, 1928, the vision was O.D. 6/15 and O.S. fingers at three feet. The pupils reacted very slightly to light. The knee jerks were normal and there was no Romberg. Urinalysis showed sp. gr. 1017, acid reaction albumin one per cent, pus, numerous hyaline casts. Blood Wassermann was negative.

Discussion. DR. WILLIAM H. CRISP thought the appearance of the vitreous suggested a luetic disturbance, and that neoarsphenamin and mixed treatment should be instituted. He felt that these cases should be treated vigorously by intravenous arsenical preparations and that the error was in not pushing the treatment.

DR. EDWARD JACKSON thought that the general disturbance of the whole retina and especially of the pigment epithelium indicated a systemic causal factor, probably luetic. The spinal fluid should be investigated and reliance placed on mercury and the iodides, preferring these to the arsenicals.

DR. EDWARD R. NEEPER recited briefly the case histories of two luetic patients. Following vigorous antiluetic treatment with arsenicals, both developed pernicious anemia and died. These experiences strengthened his preference for mercury. He reported a third case in which failing vision was thought to be due to lues. The Wassermann was positive and neoarsphenamin was being given in large doses. On recognition and treatment of a positive ethmoid infection the vision immediately began to improve.

DR. E. M. MARBOURG mentioned a case in which optic neuritis developed after arsenicals. Immediate improvement followed upon the vigorous administration of sodium thiosulphate.

DR. J. J. PATTEE advised the use of

iron as an adjunct in the treatment of lues.

Vitreous opacities of traumatic origin

DR. JAMES A. PATTERSON showed Mr. G. P., who had been first examined on June 4, 1928. One year ago a rolling rock had pinned his leg against a mine car. The leg was cut, but he was able to resume his work in a short time. Three weeks after this accident he noticed what he described as a floating mass before his left eye. At times this would clear considerably, but when he lost sleep or became nervous it reappeared. Now it never disappeared. Vision O.D. was 6/5 and O.S. light perception. The pupils reacted to light and in convergence. The right fundus was negative. The left fundus showed a large blotch of pigment down and out with seemingly some little absorption around it. Between this pigment patch and the disc, there was an elevation and possibly exudation, because the vessels were beneath it. There were two large masses of exudate in the anterior part of the vitreous. These masses floated around, changing shape and position when the eye was moved. The upper part of the disc was visible, the lower half obscured by a whitish mass of exudation.

Discussion. DR. WILLIAM H. CRISP could not correlate the history of this case with the ophthalmoscopic picture, and questioned the probability of sudden blindness due to trauma.

Rupture of choroid

DR. EDGAR C. WEBB brought Master C. W., aged twelve years, a healthy boy of normal weight. He had had the usual diseases of childhood. The vision as tested by a school nurse in the spring of 1928 was recorded as 20/20 for each eye. On September 11, 1928, while watching a ball game, he was struck on the left side of the face by a baseball. Intense edema of the lids resulted, with a small hemorrhagic area at twelve

o'clock at the limbus. The patient was treated by a general practitioner until October 20, when he was examined by Dr. Webb. Vision O.D. was 20/20 and O.S. 10/200. The left cornea, iris, sclera, and lens were normal, but the fundus showed a crescent-shaped rupture of the choroid, starting midway between the nervehead and the macula and extending below the disc to the nasal side with another small tear through the macular region. There was an old hemorrhage in the macular region, and some pigmentation below and to the temporal side of the nerve. The fundus was examined one week later, when much of the hemorrhage had absorbed but the vision remained the same.

Discussion. DR. J. J. PATTEE recalled two cases of choroidal rupture in which the streaks were vertical and almost hair line in appearance. The vision remained good (20/40) in both cases, though the pupils were partially dilated. The one case was seen many years later, and the vision still remained 20/40.

Hairs growing in palpebral conjunctiva

DR. EDWARD R. NEEPER showed five fine hairs which had grown on a small area of the conjunctival surface of an otherwise normal lower left lid near the center, and about two millimeters below the lid margin. These hairs had been epilated with considerable difficulty, two on October 22, and three on October 23, 1928. The eye had been red and painful for a few days previously. The lower one-sixth of the cornea appeared dull and hazy, and there was many minute, elevated blebs of the corneal epithelium in this region. The area took an indefinite fluorescein stain. The eye was practically normal on October 24, and had been entirely normal since that date. The man, aged sixty years, had been a patient for twenty years. One hair had been removed from the same area for similar symptoms

on January 17, 1928, another on February 6, 1928, and another on June 26, 1928, so that another crop might be expected within four months. Because of the great difficulty encountered in discovering, seeing, and removing these fine, wet, and clinging hairs, Dr. Neerer wondered if perhaps others had not encountered and possibly overlooked such a cause of localized keratitis and even corneal ulceration.

Cycloplegia from dental infection

DR. DAVID A. STRICKLER reported concerning Mrs. G. M., aged forty years, a seamstress, who had been first seen on October 22, 1928. She complained that two days ago her vision blurred so that she was unable to see her work. On this morning her employer told her that the pupils were large. A history of headaches over a long period of time was elicited, definitely associated with close work. The vision O.D. and O.S., with correction, was 20/20. With plus 2.25 sphere added to the distant correction her near point was twenty-eight centimeters with each eye. She was quite positive that no drops had been used in the eyes save "murine" and this from a bottle used on other occasions without any blurring of vision, and from a dropper which had never been used except for the "murine." She had not taken internal medicine of any kind recently.

Examination of the teeth showed seven badly decayed members in the upper maxilla, all dead but one. They were promptly extracted. Five days later with distant correction she read the 0.37 meter type at twenty-five centimeters. She was told to take up her work two days later. On November 8, she reported that she had had no difficulty since returning to work. In the absence of a mydriatic, or any internal medication, the early return to normal after removal of bad teeth would seem to justify a diagnosis of mydriasis and paralysis of accom-

modation due to focal infection of dental origin.

DONALD H. O'ROURKE,
Secretary.

SAINT LOUIS OPHTHALMIC SOCIETY

October 26, 1928

DR. WM. F. HARDY presiding

Cataract operation with conjunctival bridge

DR. CARL EBER presented a paper on this subject which is published in full in this issue of the Journal (see page 106).

Discussion. DR. A. E. EWING said he preferred to make the iridectomy to the nasal side, as there was less effort in looking to the nasal than to the temporal side, also greater protection against light, but he did not hesitate to make it to the temporal side if the iris so presented. He commended Dr. Eber's forceps but employed the Snel-len loop, turning it beneath the flap, and making pressure on the posterior lip of the corneoscleral wound with the anterior limb of the loop. Counter pressure was made on the lower corneal margin, and the lens withdrawn by the loop from beneath the flap. No trouble had been caused by lens substance left beneath the flap, as it had been easily removed with spatula or Davel spoon or by gently irrigating across the wound from the nasal side outward with normal saline, using an eye pipette or a small syringe. This removed the blood and cortex from the wound and often from the anterior chamber by suction of the stream passing across the wound. He had acquired this procedure from Dr. Karl Koller early, and considered it valuable as safe and obviating irrigation of the anterior chamber, which manipulation he had never used because of its danger.

DR. W. E. SHAHAN had operated ten days before, using the Ewing flap. He said that the flap had not interfered

with expression of the nucleus nor with removal of cortex by the Davel spoon. The patient had partially removed the bandage on the second night, and on the third had torn it off, but no injury was done, largely he thought because the flap held the wound securely.

DR. F. E. WOODRUFF said he had tried the conjunctival flap and thought the difficulty obviated if the flap were made long enough and not too wide. If a sufficiently long flap were made and pressure exerted on the upper part of the wound, delivery of the lens was easy. He called attention to Mr. Duke Elder's comment on this flap in the current issue of the British Journal of Ophthalmology.

DR. JOHN GREEN stated that one advantage of the sutured flap over the bridge was the more satisfactory handling of cases with loss of vitreous. In his operations he usually sutured the flap loosely before the toilet and said one could complete the toilet satisfactorily even after vitreous loss. He preferred Benedict's irrigator, which served the added purpose of a repositor.

DR. EBER, closing, said he had found less astigmatism with the bridge. He had that day tested a patient who had two diopters of astigmatism. He said a wide bridge produced a little more tension than a narrow one. In one case the lens had slipped behind the sclera partly into the vitreous, this being the first case of his series of twenty-five. This accident he thought due to insufficient counter pressure on the scleral lip of the wound.

Unilateral paresis of accommodation

DR. LAWRENCE POST presented the history of three cases of unilateral or chiefly unilateral paresis of accommodation. The first case appeared to have been due to an injury to the ciliary ganglion by a needle used for injection of the anterior dental nerve. A permanent paralysis resulted. Case two followed what was probably an encephalitis lethargica, and was asso-

ciated with transitory esophoria of twenty degrees at twenty feet. Recovery took place gradually in about three months. The last case was in a thirty-five-year-old woman whose paresis in one eye was sufficient to reduce reading to nine-point type. No cause was found. Recovery was complete in three months, except for a slight dilatation of the pupil in the affected eye.

Iris sphincter anomaly

DR. LAWRENCE POST also reported the case of an eight year old boy whose pupils failed to dilate with homatropin or with cocaine used after the homatropin, or, six months later, after cocaine was used independently. The irides looked normal in every way both by the usual focal illumination and with the slit-lamp. There were certainly no visible adhesions. The accommodation was paralyzed by the mydriatic. The only possible explanation seemed to be some invisible fibrous bands in the iris sphincter.

Discussion. DR. F. E. WOODRUFF mentioned a case of paralysis of accommodation in a man who had been taking belladonna in proprietary pills.

DR. W. E. SHAHAN said he had observed a woman, nineteen years of age, whose accommodation had been deficient for six years following an attack of probable encephalitis lethargica. She required two diopters added to her distance correction for reading. Her pupillary reactions were normal except to accommodation. After prolonged futile treatment with pilocarpin he had prescribed bifocals. He had seen another case of loss of accommodation in one eye with Argyll Robertson pupil in that eye only, following a gunshot wound in which the shot passed through or near the ciliary ganglion without penetrating the globe. The accommodative power was recovered after several months.

B. Y. ALVIS,
Editor

NASHVILLE ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

November 19, 1928

DR. HERSCHEL EZELL, Chairman

Chronic glaucoma

DR. E. B. CAYCE reported the case of Mrs. A. J. W., aged seventy-one years, who was first seen on May 2, 1922, at which time the tension was 62 mm. in the right eye and 67 mm. in the left eye. She had responded to miotic treatment, under which she had continued to enjoy comfortable vision, until for the last year there had been an opacity in both lenses that had interfered somewhat with her vision. Her tension on November 19 was 54 mm. right eye and 43 mm. left eye. Dextroglaucosan was instilled four times, and within two hours the tension in the right eye was 38 mm. and in the left eye 36 mm.

Traumatic amaurosis

DR. E. B. CAYCE reported the case of J.Q.B., aged fifty years. On September 14, 1928, he had been struck on the right side of his head with a twelve-pound hammer. He was knocked unconscious, had a severe headache on the right temporal side for five or six days, and since that time had had several attacks of headache in the same location. External examination of the eye was negative at present. The consensual pupil reaction was normal. When the right eye was exposed to light the pupil contracted slightly and then dilated slightly. Fundus examination was negative, the media clear. The right eye was blind. The uncorrected vision of the left eye was 1/10, and with + 1.50 sphere was 20/20. The field of vision in this eye was normal. An x-ray of the right optic foramen showed it normal in size, and no skull fracture was made out by x-ray.

Discussion. DR. M. M. CULLOM said it would be interesting to see the eye again in six months. Atrophy would probably be apparent at that time.

The case was behaving now like a retrobulbar neuritis, and it was evident that the traumatism had injured the optic nerve.

DR. HERSCHEL EZELL asked if the sight had been lost all at once.

DR. E. B. CAYCE, closing, said that the sight had gradually gone in the course of three weeks. It was possible that the patient had had an optic neuritis which had cleared up without leaving visible traces.

Bilateral glaucoma

DR. M. M. CULLOM related the case of Mrs. C.A.H., aged sixty-five years, white, who on August 4, 1924, had consulted him in regard to her left eye. The eye was not congested. The pupil was widely dilated and the ophthalmoscopic examination revealed a marked glaucomatous cup. The McLean tonometer showed a tension of sixty mm. The vision was 5/200. The right eye had normal tension and vision of 20/15 with + 1.75 sphere. An Elliott corneoscleral trephining was performed at St. Thomas' Hospital on August 5, 1924, and recovery was uneventful. Four years later the second

eye became involved and a successful trephine operation was done. A variability of tension in the eye from 30 to 65 mm., before operation, was an interesting feature. The eye operated on four years previously had not deteriorated during this time.

Discussion. DR. FRED HASTY said this case demonstrated to his mind one important point in the practice of medicine, namely, that the real value of medical science was to reason and observe and not alone to use the knife.

DR. M. M. CULLOM, in closing, said that Dr. Wiener of St. Louis had read a paper at the Southern Medical Association in which he took the position that every case of glaucoma was a surgical case. This was contrary to a great many, who claimed that chronic glaucoma was not surgical. The more Dr. Cullom saw of glaucoma the more he was convinced that Dr. Wiener was right. Where we could see patients constantly we might keep them under miotics and watch them frequently, but if they escaped us and left off treatment the eyes were lost.

W. W. WILKERSON, JR.
Secretary

American Journal of Ophthalmology

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EDITORIAL CHANGES

"Life is change" may be a truism which is accepted by every one in the abstract; and yet every important change seems to some unnecessary. Some readers have doubtless wondered at the changes shown in the January issue of this Journal. Perhaps few remember that Dr. Würdemann's editorial career began with the *Annals of Ophthalmology* in 1896, and continued in the *Annals*, and in "Ophthalmology" which he founded, for twenty-one years before he became an active editor of this Journal. It may also be overlooked that Dr. Wiener, before his eleven years on the staff of the American Journal of Ophthalmology, had been for seven years editor of the *Annals of Ophthalmology*. The editorial work of these men has been done during the most active years of their professional lives, while building up practice and serving in clinical positions, and in the important teaching of ophthalmology. Although it may not be in the same literary field, it is hoped their agreeable

companionship may still continue with us.

The names which are new in the list of editors of the American Journal of Ophthalmology are not new to its readers. Both have been active in the literature of ophthalmology, in the life of local and national ophthalmic societies, and as collaborators in the work of this Journal. Dr. Edward C. Ellett for over a quarter of a century has been rising to prominence among the ophthalmologists of the southern United States. Dr. Harry S. Gradle has won new respect for a name already eminent in the older generation of ophthalmologists. In this new field we may expect their habits of observation and their keen interest in ophthalmic science to become still more serviceable to their colleagues in all parts of the world.

The signing, with the contributor's full name, of each contribution from an editor or collaborator, is not agreeable to the present writer, who has a keen sense of what little importance

some of his contributions have. He feels that all who have read the Journal should know whom E. J. means. But he has to admit that one rule for all contributions is just, that the signature of each abstract or note will give credit where credit is due, that such a rule is more democratic, and that with each number there will be some readers who will have to become familiar with the signature of

Edward Jackson.

PHYSICAL DEFECTS AND MOTOR ACCIDENTS

It will perhaps always be true that the vast majority of automobile accidents are due to carelessness on the part of one or both drivers. Safety is only to be maintained by reasonable speed, constant watchfulness, skill in driving, a willingness to be not merely fair but generous in regard to the right of way, and a healthy skepticism as to how far any other driver can be depended upon to do the correct or skillful thing required by the exigency of the moment.

But it is probable that a rather important percentage of all automobile accidents are due to physical infirmities. No statistics are available to show what this percentage is, for, unless any very obvious physical infirmity exists, the official or private investigation of causes does not ordinarily include this question. It would seem advisable to require that no person subject to epileptic attacks should be allowed to drive a motor vehicle. Unquestionably, drivers suffering from nephritis or arteriosclerosis are occasionally responsible for accidents in which their own death or loss of consciousness precedes the remainder of the catastrophe. Very deaf people are appreciably less safe as drivers than those who hear well.

As regards visual defects, the hazard of driving is increased by low visual acuity from any cause, whether it be due to clouding of the ocular media, to congenital or acquired imperfections of the retina, or to abnormal conditions of

the optic nerve, optic tracts, or optic centers. One-eyed persons are commonly regarded as unsafe, although some of them drive very skillfully. Either bitemporal or homonymous hemianopsia, in spite of the presence of good central vision, is a formidable handicap, and loss of the outer field of either eye almost places the driver in the one-eyed class. Patients with so-called retinitis pigmentosa, whose vision by day is adequate, but who suffer from night blindness, are dangerous drivers after dark, as some of them have discovered to their entire surprise. Even the occasional "blind spells" often associated with eyestrain are not free from danger, although they are more apt to occur during close use of the eyes than in the course of pursuits which require only distant vision.

It is the duty of the physician, not merely to care for his individual patients, but also to act, either where actually called upon, or sometimes as a voluntary critic of public affairs, as expert adviser to those who promote or enact legislation. But, while it is not difficult to suggest a list of physical defects in the driver which may endanger the person or life of himself and others, it is a much more complex matter to exclude those afflicted by such defects from the pleasures and conveniences associated with the driving of motor vehicles.

In the first place, many a sufferer from almost any of the defects just referred to is safer as a driver than some people with perfectly normal vision. The person who is well balanced mentally and who yet suffers from a decided ocular defect has often learned to make perfectly adequate allowance for his infirmity, so that by reducing speed on busy streets, or by greater watchfulness, he lessens the risk involved practically to the zero point, so far as his own responsibility is concerned. A nervous, jumpy, easily frightened driver is often to blame for injury or death in motor accidents, and yet, except after repeated painful experiences, it would usually be next to

impossible to exclude such a person from driving a car.

Attempts have been made to pass legislation prohibiting those with ocular and other disabilities from obtaining licenses to drive. The idea is not altogether impracticable as regards taxi and bus drivers, but with regard to private owners the opposition to such restrictions and their arbitrary enforcement would usually destroy the effectiveness of attempts at regulation. It is not at all unlikely that many of the powerful organizations interested in making, advertising, and selling automobiles would find reasons for opposing such a legislative or administrative measure. Under existing regulations it is often a matter for severe criticism that relatively young children are allowed to drive automobiles, and yet in most regions such driving has been definitely prohibited, and the fault lies rather in lack of enforcement than in nonexistence of the necessary law.

Recognizing many of these difficulties, yet impressed with the necessity for taking some steps to reduce the number of casualties from automobile accidents, Weekers* (*Bulletin de la Société Belge d'Ophthalmologie*, 1928, page 15; also *Archives d'Ophthalmologie*, 1928, volume forty-five, page 636) has proposed an indirect method of thrusting upon the automobile driver an adequate degree of responsibility for any risk which he may take in consequence of physical disability.

Weekers would establish a list of the various physical defects which tend to disqualify from driving an automobile, and would furnish this list to everyone demanding a driver's permit. He would provide by law that whoever, being affected by one or more of these disabilities, drove a car, should be, in case of accident, and by the mere fact of such disability, in the light of expert advice, condemned to heavy fine and imprisonment, and should moreover be liable for the damage sustained by another person as a result of the accident.

* See also abstracts on pages 85 and 87 of the January issue of this Journal.

Weekers argues that in the face of such a provision insurance companies would be strongly disposed to refuse policies to those suffering from defects specified under the law, and would insist upon adequate preliminary medical examination of their prospects. All the insurance companies might include in their contracts clauses to render such contracts void if the holders could be shown to have suffered from defects responsible for accidents otherwise covered under the policies.

In discussion of Weekers' proposal Coppez alleged that, in relation to a similar measure unsuccessfully promoted in Belgium in 1925, inquiry had demonstrated that physical incompetence on the part of drivers was only responsible for an extremely small percentage of automobile accidents, and that the majority of such accidents were due to the unskillfulness of drivers, their lack of prudence, their love of speed, a condition of intoxication, or even the unsafe condition of their machines.

The subject of visual requirements for automobile drivers is handled in an exhaustive way by Jeandelize* (*Archives d'Ophthalmologie*, 1928, volume 45, page 643 and page 700), with a summary of the measures already taken in various European countries. Jeandelize urges that signals, now so generally in use, should not carry inscriptions, that they should be recognizable rather by their form than by their color (colored signals being suppressed if possible), and that they should be standardized nationally and even internationally. He would demand a visual acuity of 0.3 for one eye and 0.05 (modified by a footnote to 0.1) for the other. The visual field of each eye should be normal. Other disqualifications would include one-eyedness, diplopia, hemeralopia, and color blindness as to the distinction between red and green (if colored signals could not be excluded). Further, he proposes that automobile drivers should submit themselves to a qualifying examination at regular intervals, say every five years, and in any

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event after the occurrence of an accident. Sufferers from hemeralopia might be given permits for day driving only.

In this country the statutory provisions pertaining to the eyesight of motor drivers, as set down in a report submitted in 1925 to the Section on Ophthalmology of the American Medical Association, by the Eyesight Conservation Council of America, are lax, variable, and inconsistent. Only four states had at that time made any statutory reference to the eyesight of automobile operators. Only thirteen states then required candidates for drivers' licenses to pass a specified examination, and several of these applied the law only to chauffeurs. Pennsylvania was the only state which provided that no license should be issued to any person physically incapacitated.

W. H. Crisp.

READING DIFFICULTIES IN CHILDHOOD

Frequently children are brought to the ophthalmologist because they are not doing their school work so well as they should and it is thought that defective vision may prove to be the underlying cause of the trouble. In a number of these cases the visual acuity will not be found sufficiently impaired to account for the poor scholastic ability. But though the acuity of vision is not at fault, the parents may still be on the right track, the deficiency being in all likelihood in a closely allied field.

An analysis of the causes of failures in the early grades gives an overwhelming preponderance to reading defects. In the first grade this is a factor in ninety-nine per cent of the failures. The percentage decreases in a fairly smooth curve, but is still about twenty-five per cent in the eighth grade. For this reason anything which has to do with ability to read is of vital importance to the child, not only from an educational but from a behavior standpoint. If the child fails in reading he fails in his entire school

work; he is considered a dullard by his companions and his teachers and ultimately by himself. He then seeks some compensatory reaction. Fortunately this is in many instances a mild and not distinctly asocial outlet, such as day dreams in which he pictures himself the hero of adventures as a compensation for his class room deficiencies. He may find success in athletics or some other activity outside the school course, which maintains his self-respect; but more often he becomes inattentive and goes from bad to worse, and he may even fall into highly objectionable behaviorisms.

Reading has been studied scientifically and analyzed into its various elements. One of the obvious requirements for learning to read, without special instruction, is good vision. The visual tests now conducted in most public schools and in an increasing number of private schools have been important means of bringing to treatment many children whose poor work was due to defective eyesight, so that this particular cause of failure is being gradually eliminated.

When the ophthalmologist finds the sight too nearly normal to account for the child's reading disability there is some danger that he may feel his duty sufficiently done in telling the mother that the eyes are all right; whereas if he would take time to explain to the mother some of the commonest causes for difficulty in reading other than poor visual acuity, he might be the instrument for initiating studies which would ultimately solve the problem.

First, a careful investigation of the mental age and general intelligence of the child should be made. If this proves normal or nearly so, the particular type of reading defect present should be determined, as to whether it depends upon visual perception, upon vocal motor reactions, upon visual analysis and recognition, upon visual verbal memories or upon any other factor. Special tests have been devised for these determinations, so that reasonably accurate estimates are at-

tainable. After this analysis has revealed the underlying deficiencies the child should have individual instruction especially designed to correct the trouble. Group teaching in these cases has been found to be almost useless. Once a success is obtained, however small, the child is tremendously encouraged and progress is usually rapid. Children live on encouragement and, if this comes as a reward for reasonable effort, success is assured.

The ophthalmologist may feel that he has stepped somewhat outside his proper field in taking this course, but, until the great mass of teachers is thoroughly familiar with these various causes for poor reading, it may be most helpful to call attention to such possibilities.

L. T. Post.

CHEMOTHERAPY OF OCULAR TUBERCULOSIS

Since, in 1848, Virchow declared it to be the task of mankind to conquer tuberculosis, much has been accomplished to lessen the ravages of this universal scourge of humanity. Yet, in many sufferers, we are still able rather to mitigate than to cure, and where cures are completed the part played by physician and nurse is rather to create conditions favorable to the healing influence of nature than to administer specific treatment having definite power to combat the disease. In other words, the human body tends to cure itself of tuberculosis, and sanitaria, climate, food, rest, doctors, and nurses merely establish an environment which aids this tendency.

In spite of the early hopes of Koch himself, discoverer of the tubercle bacillus and also of tuberculin, we are still apparently as far as ever from the ability to say confidently that there is any specific treatment for tuberculosis. There are many who believe that tuberculin possesses as great a capacity for harm as for good. It is notoriously dangerous in the presence of active lung involvement. As

regards ocular tuberculosis, the critics of tuberculin, silent or outspoken, are probably as numerous as its adherents. The opinions of experts as to the mode of administration are far from unanimous, some maintaining that focal reactions should at all times be avoided, others that the greatest benefit can only be had if the dose be pushed to the point at which such reactions appear. It has even been argued that any benefit obtained from tuberculin is due to its influence as a foreign protein rather than to any specific quality.

There is perhaps at the present time a wavering in the position of some who a few years ago were among the more enthusiastic advocates of tuberculin as a remedy for tuberculosis of the eye. In regard to many of the cases treated with any one of the various forms of tuberculin, it may fairly be doubted whether it has conferred substantial advantage in the fight against the disease; and whether at least as much and possibly more might not have been accomplished by the same general measures as have proved relatively successful in the control of pulmonary tuberculosis.

Several of the most notable pharmacologic agents in the battle with disease have been those which more or less completely destroyed the offending organism within the patient's tissues. Two of the most remarkable among these agents, notwithstanding recent discoveries by the synthetic chemist, are the old empirical remedies, mercury for syphilis and quinine for malaria. Investigation of the modern problem, to create new compounds which shall have specific power to destroy or inhibit microorganisms in the tissues, without destroying the tissues themselves, produced a very brilliant result in Ehrlich's "therapia sterilans," salvarsan or 606. Another definite success, although of more limited application than was originally hoped of it, may be recorded in the case of ethylhydrocuprein, better known by the trade name of optochin,

a drug which was at first designed for the treatment of pneumonia, but whose employment, on account of its toxicity, is now practically limited to pneumococcal infections of the eye.

Similar examples, more or less successful, are to be found in the application of bismuth compounds to syphilis, plasmochin for eradication of the gametocytes of malaria, and the newer arsenical compounds against lues.

A book by Møllgaard on the "chemotherapy of tuberculosis", published in 1924, revived the attempt of some earlier investigators to discover a gold compound which should be applicable to tuberculosis. The chemical outcome of his labors, known as sanocrysin, is readily soluble in water, rapidly diffuses through an animal membrane, presents (in solution) the gold in a complex ion of limited toxicity, and develops no poisonous cleavage products.

According to Winkler-Prins (Archiv für Augenheilkunde, 1928, volume 99, page 543), the merit of the investigation of sanocrysin lies in the fact that it has again brought to the fore the possibility of a chemical attack upon the tubercle bacillus within the organism. Of quite subordinate importance is the question whether sanocrysin directly attacks the bacilli, or whether its effect is secondary to certain metamorphoses in the blood or in the tissues, such as are assumed in connection with the effect of neosalvarsan on the spirochetes of syphilis.

Little has been written concerning the treatment of ocular tuberculosis with sanocrysin. Lundsgaard found that intravenous administration of the drug caused a marked reaction in tuberculous eyes. The same method of administration in the hands of Secher and Würtzen induced in healthy eyes a swelling and edema either alone or with erythema, and sometimes so marked as to present the picture of a well developed purulent conjunctivitis.

A recent essay by Carsten Edmund

reports that of thirty-three patients twenty developed phlyctenular conjunctivitis of varying intensity after the use of sanocrysin, while ten patients showed a palpebral conjunctivitis varying from a catarrhal to a pseudomembranous character. Five of the patients had a combination of the two disorders. Edmund regards the first type of reaction as tuberculotoxic and the second as perhaps a form of metallic poisoning. In ten patients studied by Werner, the drug was found to disclose no noteworthy therapeutic value, and the clinical improvement obtained in some of the cases was not more rapid than with the usual lines of treatment.

Winkler-Prins's own investigations were conducted upon rabbits in which ocular tuberculosis had been experimentally induced. The results after instillation of the preparation were doubtful. As regards intravenous administration, a number of the rabbits experimented upon died during treatment, but it could not be decided to what extent the drug contributed to this end. In some cases the eye went to pieces in spite of administration of the drug. But the treated cases appeared to run a more favorable course than the untreated. In two cases the inflammatory disturbances began again a little while after the treatment was stopped. Distinct focal reactions were not observed; although gold deposits were found in the diseased corneal areas.

The number of cases hitherto studied is inadequate for any final conclusions. In the experiments of Winkler-Prins the administration of the drug involved no special danger for the eye. This author goes so far as to say that his results were such as to stimulate the application of sanocrysin to ocular tuberculosis in cases which have failed to yield to other lines of treatment. There is some suggestion that the complex chemical substance under discussion stands in a

more or less specific relationship to active tuberculosis.

It is conceivable either that the series of investigation initiated by Møllgaard may prove fruitless and futile, or that they may represent the feeble beginnings of another triumph of chemotherapy. At present they are interesting chiefly as a detail in the struggle of medicine and chemistry to forge a swift and formidable weapon against the tubercle bacillus. The march of scientific research is constituted by an apparently infinite number of such individual steps, by labors whose total in human terms of measurement is enormous, whose immediate fruits are often seemingly or actually negligible, yet which are necessary and useful for the discovery of truth and the advancement of human well-being and happiness.

W. H. Crisp.

Erratum

In the December issue (page 1008), in the abstract of an article by Poos and Santon on the use of ergotamin in the eye, the last sentence should read "the unquestioned fact that it does reduce" etc., omitting the word "not".

BOOK NOTICES

Photographs of the Fundus Oculi, by Arthur J. Bedell, Albany, New York. Leather, quarto, 316 pages, 95 plates, 324 single and 274 stereoscopic photographs. Philadelphia, F. A. Davis Company, 1929.

Almost fifty years ago the writer became interested in attempting to photograph the fundus of the eye, and he found that Henry D. Noyes and Lucien Howe had each worked at this problem. Those early efforts achieved no results of practical importance. Now we have an atlas containing 868 pictures of the fundus oculi, selected from four thousand photographs, and made and reproduced by methods that are now available to any ophthalmologist.

No atlas of colored plates of the fundus of the eye has more than one-sixth of this number of fundus drawings, at best somewhat schematic. The present illustrations are photographic, giving every detail that the eye-grounds presented. They are free from the errors of personal equation in estimating color values, and they are not faulty by the omissions which the artist working with pencil or brush can scarcely avoid. Color plates are valuable even with their necessary defects, but they require great expenditure of time; and it has been practically impossible, by means of them, to show successive pictures of the lesions they represent which would give a true idea of the successive appearances.

The greatest lesson this volume will teach is the enormous superiority of photographic records over written descriptions, or over figures drawn or painted by the most skilful artists. This lesson will not be fully learned unless its importance is emphasized, and details of these pictures searched out and dwelt upon. For this alone, this atlas is worth owning and worth studying many times.

The book begins with a brief preface, the table of contents, and a "foreword" of twenty-one pages. Then follow the plates; a list of the conditions shown in each being printed on the opposite leaf of tissue paper, with a brief abstract of the case from which the picture was obtained. These abstracts occupy from one to three pages for a single plate, and each abstract has a marginal heading in heavy-face type, that makes it very easy to refer to the pictures showing any particular condition.

A sense of the superiority of photographic records grows on one as he studies these plates. It excites a sense of awe to think what case reports including fundus conditions will mean when each is illustrated by photographs of the conditions present; sometimes whole series of the changes in appearance exhibited in the progress of the case. To have such pictures of one's

own cases, to compare with each other, or with a new case being studied for the first time, must add enormously to the value of the clinical experience of the veteran ophthalmologist. For the inexperienced student of ophthalmology, a collection like this, to compare with what is seen with the ophthalmoscope, may be of the greatest value in developing powers of observation and soundness of judgment which could only come by years of clinical experience without such help.

In such studies the value of the stereoscopic photographs is very great. They do not need to be taken from the book and mounted to fit the ordinary stereoscope. With the ordinary trial frame, containing prisms with their bases turned toward the temple, the stereoscopic effect may be obtained and studied by any one with good binocular vision. The strength of prisms giving the best effect may vary from two to ten centrads (or prism degrees or diopters) according to the observer's tendency to esophoria or exophoria. This matter has been previously referred to in the *American Journal of Ophthalmology*, volume 7, page 649, August, 1924. To be able to get the stereoscopic effect of pictures printed in the pages of a book is an accomplishment worth cultivating.

A great deal more might be said about the value and importance of this atlas of fundus photographs. But it would only serve by pointing out the reasons for studying these pictures for oneself. We may hope for other atlases of the kind in the future, but this one furnishes material for a great deal of study and careful thought.

Edward Jackson.

Pacific Coast Oto-ophthalmological Society, annual meeting, Santa Barbara, 1928. Paper, 223 pages, illustrated. Published by the Society.

Less than half the papers in this volume refer to ophthalmic conditions, but some of the others should be of

interest to all ophthalmologists. Bronchoscopy and oral endoscopy are so new that most ophthalmologists heard nothing about them in the common textbooks. But they constitute such an important development in a new field of medicine, and include such novel, suggestive, and important observations and resources for any field of medicine, that even one who devotes himself strictly to ophthalmology cannot afford to ignore the papers and the discussions of them. Electronystagmography, dealing with the eye movements of nystagmus, should be of especial interest to all who are devoted to ophthalmic practice.

The subjects of papers that deal strictly with ophthalmology include the following: glaucoma operations, their comparative value, and a historical review; cataract operations in diabetes; fracture of the optic canal; radium therapy in vernal catarrh; the diagnosis of motor palsies; and photography of the human fundus oculi. All these papers are interesting and can be read with profit, and the discussions they gave rise to are equally valuable.

The list of officers of the Society gives details of historic interest, including the dates and places of the sixteen meetings that have been held. The list of members, who number 298, affords a good directory of physicians engaged in these branches of special practice in the Pacific Coast states. This Society and its transactions deserve to be more widely known.

Edward Jackson.

The Sack-'em-up Men—an account of the rise and fall of the modern resurrectionists, by James Moores Ball, Saint Louis, Missouri, 207 pages, 78 illustrations. Published by Oliver and Boyd, Edinburgh and London, October, 1928. Cloth covers, 16 shillings net.

Under this bizarre title Dr. Ball, here-

tofore known far and wide as an ophthalmic surgeon of no mean ability, turns his literary talent toward a gruesome subject and brings to light many details in history not very pleasant to record, but affording none the less an insight into the means whereby much of our now commonplace knowledge of anatomy was made possible.

The subject has been considered from several aspects by other writers, but all have fallen into the same error as Dr. Ball, in not giving a title to the record that would permit of ready indexing. The superlibrarian will more than likely make a card out for this book under "sack", and thus the results of countless hours spent in the perusal of musty volumes will be lost to posterity.

"The resurrectionists" would have been a much better title, but even then the subject might be included in some ecclesiastic classification. However, to most medical writers the word "resurrectionists" has a distinct meaning, and refers to a group of individuals who elected to live by robbing graves, more especially in the early part of the last century and somewhat earlier, when the term was coined to apply to certain characters who figured in the prints of the day.

Dr. Francis Packard, of Philadelphia, wrote a paper several years ago along this same line, and more recently Doctor Krumbhaar, of the same city, did likewise. Doctor W. B. Howell, of Montreal, has also contributed to this subject. Many others have had a fling at it, repulsive though it is, but none of them have entered into the subject with the zeal that characterizes Dr. Ball's recent effort.

In his introduction he makes an attempt to show that "body snatching" was after all only a step further in the evolution of the relique mania which flourished in the middle ages and later. He draws a not inapt comparison between the "body-snatchers" of days gone by and the modern Egyptologists who despoil the tombs of the ancients for reasons after all not so very dis-

similar. Dr. Ball utilizes a good deal of history in order to make his contention effective, and, if for no other reason, this introduction can not fail to be profitable to the reader.

The author's interest in Andreas Vesalius, the reformer of anatomy, leads him to include several chapters upon the development of anatomy and the inspiration it provided for the "sack-'em-up" fraternity. Especially did the ancient Alexandrian anatomists condone the exploitation of the bodies of criminals, alive as well as dead, if we are to accept the statement of Celsus, herein quoted. These chapters are most illuminating and tend to dispel many erroneous conceptions. Certain it seems that Christianity in the early days looked with little favor on the development of anatomical knowledge.

The author appears unable to resist remarking upon the influence of the artist-anatomists, although this is not directly concerned with the resurrectionists. Painting in the nude required living models, and a demand for accuracy secondary to the wave of realism redounded to the benefit of anatomy as a science. This explains the uncanny anatomical knowledge possessed by Leonardo da Vinci, Michael Angelo, and many others of this period.

It was Vesalius, after all, who inaugurated the system of grave robbing, stimulated by his zeal to become a master anatomist in the presence of a dearth of dissecting material. The biography of Vesalius which Dr. Ball gives is so entertaining one cannot restrain an envious thought of the enjoyment the author must have experienced in assembling it.

But the true resurrectionists, as the author points out, belonged to a much later period, and were related to the efforts of the Irish, Scotch, and English surgeons and anatomists to obtain their material, in the late eighteenth and early nineteenth centuries. There were a great many medical students in the medical centers and a very small number of executed criminals, the only legitimate source of anatomi-

cal material at that time. There is almost a possibility of a revival of this situation in our modern day, much as the reviewer hesitates to suggest such a contingency.

The private schools of anatomy did much to encourage the activity of the sack-em-up gentry, although without them the advance of anatomy would probably have languished. Dr. Ball acknowledges two classes of "resurrectionists"—the scientific zealot, and the rogue who was actuated solely by the easy money which the revolting trade brought. In the former class may be placed many familiar names, but in the latter were to be found an aggregation of thugs whose records are blood-curdling, and around whose doings the greater part of the book is written.

Competition and the high prices offered for the bodies encouraged murder and other revolting crimes. The author has made a wonderful collection of details concerning these "plug-uglies"; and he not only gives us facts as connoted by the news and other prints of record, but references from the more refined literature of the day, showing the great impression these practices had made upon all groups of society.

Dr. Ball shows a wide range of information and historical knowledge, and in the production of this work he once more demonstrates his tremendous industry and enterprise. The seriously-minded student can not but feel abundantly repaid by a careful perusal of this unusual work.

L. Webster Fox.

OBITUARY

Lucien Howe

Dr. Lucien Howe was born at Standish, Maine, September 18, 1848. He was the son of Marshal Spring Howe, colonel of the Third Dragoons, United States Army, and Anne Cleland, of Jacksonville, Florida. She was a descendant of Dr. Andrew Turnbull,

one of the early English settlers in that territory. On his father's side, Dr. Howe was of New England stock. His grandfather, Dr. Ebenezer Howe, of Standish, Maine, was the beloved physician of the countryside.

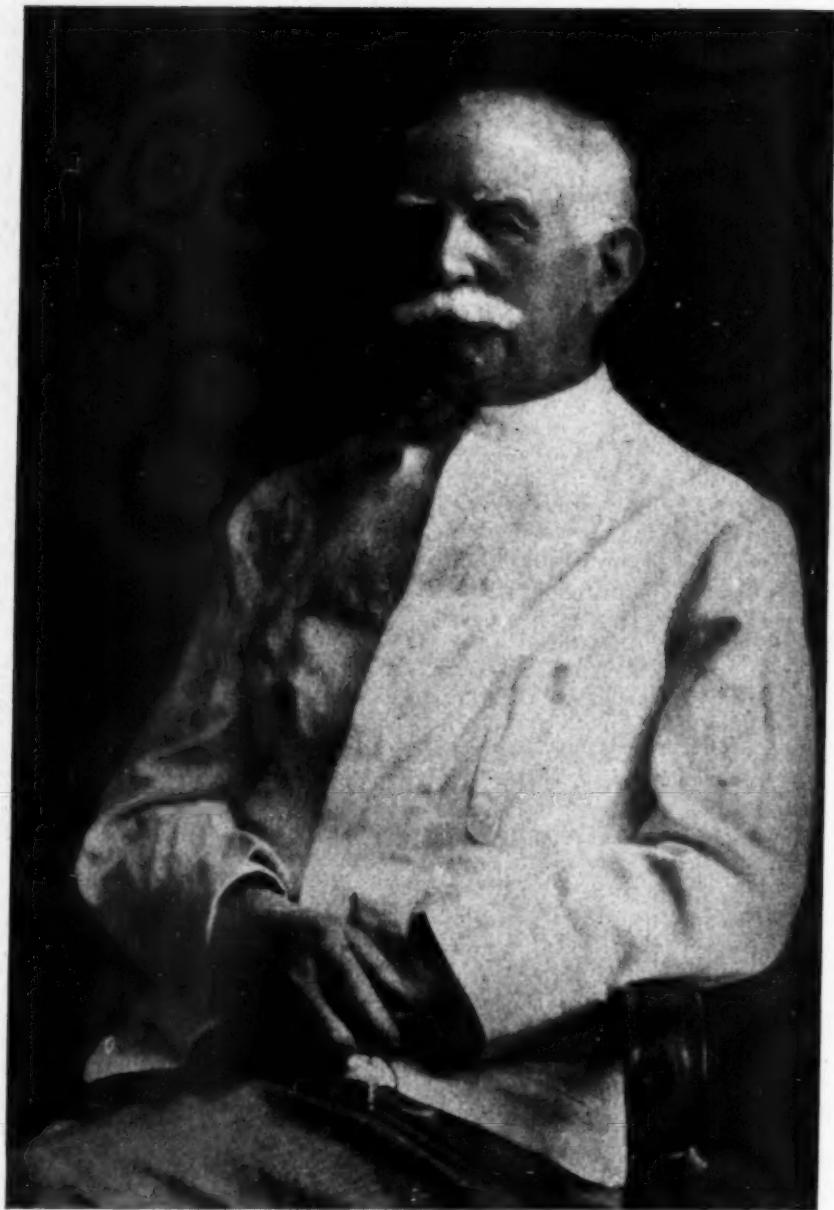
His father's service as a cavalry officer was on the plains in the epic period of that part of our country. The son's earliest memories were of Albuquerque and Santa Fé, old Spanish houses, and Mexicans asleep in the sun. There he learned to ride and speak Spanish. The educational advantages of the locality being thus exhausted, he was placed in the family of Dr. Wheeler, a Unitarian minister at Topsham, Maine, who became the boy's spiritual father, one of the great formative influences in his life.

He graduated from Bowdoin in 1870, and studied medicine at Harvard, when Oliver Wendell Holmes was teaching anatomy there, and also at Bellevue. On completing his medical course he went abroad for further study. This was largely on the advice of a teacher who said to him: "There is a man in Edinburgh named Lister, who thinks that fevers are caused by some sort of germ. I think there may be something in it. I advise you to go over and see."

He not only studied under Lister, but also in France and Germany, and in the clinics of Vienna. He was also at one time a student under Helmholtz.

On his return to America he settled in Buffalo, New York, then a comparatively small but growing city. There he practiced ophthalmology for fifty years. In the beginning it was popularly considered a wild venture, as "no one had trouble with their eyes," and when five patients appeared there was, in certain quarters, an uneasy feeling that there must be something uncanny about the strange young man.

In 1876 he founded the Buffalo Eye and Ear Infirmary which, before his connection with it closed, had treated over 100,000 patients. This included the period before Buffalo's developing industries had brought the city the abundance of clinical material which it now



DR. LUCIEN HOWE (1848-1928)

offers. He was for many years on the staff of the Buffalo General Hospital. In these early years of practice he began his work for the control of ophthalmia neonatorum, then one of the greatest causes of blindness, although a Frenchman, Credé, had shown that by the application of a few drops of a solution of nitrate of silver of a given strength to the eyes of the new-born child the disease could be checked. The disease was prevalent among the careless and ignorant, and nowhere—not even in France—was this simple preventive measure obligatory. Dr. Howe took up the campaign to make it so, state by state. With the powerful assistance of Dr. Richard Derby and State Senator Laughlin of New York, a law with adequate penalties enforcing this treatment, on any suspicion of the presence of the disease, was passed in that state. Under a persistent campaign, covering a number of years, others followed. The measure ran the usual gauntlet of opposition and ridicule; it was pronounced an invasion of personal liberty, and quoted as an instance of the fantastic legislation in which Americans indulged. But the ophthalmia of infancy began to disappear from the clinics, public cooperation was secured, and today the disease is a rarity.

The New York State Medical Society twice awarded him its medal for valuable original scientific work, and in 1927 he received the Dana medal of the National Society for the Prevention of Blindness, awarded for eminent work in that field. He himself established in the New York State Medical Society a prize for work in ophthalmology, and a like fund in the American Ophthalmological Society. He was president of this last society in 1919, and of the ophthalmic section of the American Medical Association in 1895. He was also a member of the American Academy of Ophthalmology and Otolaryngology. In 1927 he was president of the Eugenics Research Association. In 1909 Bowdoin gave him the degree of Sc.D.

Among foreign societies, he was a member of the Deutsche Ophthalmologische Gesellschaft, the Société Française d'Ophthalmologie, the Ophthalmological Society of the United Kingdom, and the Royal College of Surgeons.

His writings comprised a book on universal military education, a two-volume treatise on the muscles of the eye, and over one hundred scientific papers. He was recognized in this country and in Europe as one of the leaders in his branch of medicine.

In 1926 Dr. Howe presented to Harvard University \$250,000 for the establishment of a laboratory of ophthalmology. This sum was increased to \$500,000 by donations from the General Education Board and from the corporation of Harvard, and the Howe Laboratory of Ophthalmology, with Dr. Howe as director, was established with its headquarters at the Massachusetts Eye and Ear Infirmary. The influence of this foundation is beginning even now to be felt in medicine, and is bound to increase from year to year. In it Dr. Howe has left to medicine a worthy memorial.

Devoted specialist though he was, even living once with the Arabs in the desert in order to study the transmission of the ophthalmia of Egypt, he was a man of varied tastes. In the comparative leisure of his first years in practice, he reread the Latin classics, of which he was very fond, and succeeded in bringing Huxley to the lecture platform in a community where theological conservatism was well entrenched. He was an excellent linguist, having command of five foreign languages, and traveled widely. His daily recreation he took on horseback, and on his black mount he was a notable figure.

Fortunate are the men who in early manhood know what they wish their life work to be and who give themselves unstintedly to it. In this happy group he belonged.

ABSTRACT DEPARTMENT

Abstracts will be classified under the divisions listed below, which broadly correspond to those formerly used in the Ophthalmic Year Book. It must be remembered that any given paper may belong to several divisions of ophthalmology, although here it is only mentioned in one. Not all of the headings will necessarily be found in any one issue of the Journal.

CLASSIFICATION

1. General methods of diagnosis	9. Crystalline lens
2. Therapeutics and operations	10. Retina and vitreous
3. Physiologic optics, refraction, and color vision	11. Optic nerve and toxic amblyopias
4. Ocular movements	12. Visual tracts and centers
5. Conjunctiva	13. Eyeball and orbit
6. Cornea and sclera	14. Eyelids and lacrimal apparatus
7. Uveal tract, sympathetic disease, and aqueous humor	15. Tumors
8. Glaucoma and ocular tension	16. Injuries
	17. Systemic diseases, including parasites
	18. Hygiene, sociology, education and history

1. GENERAL METHODS OF DIAGNOSIS

Blair, W. W. *A tangent-screen scotometer with illuminating device*. Atlantic Med. Jour., 1928, v. 31, July, pp. 723-724.

The author describes his visual field apparatus for the detection of central and paracentral scotomata, made up of two flat screens, one fixed and the other revolving, located one behind the other. The test objects are located on an endless belt, moving radially across the first screen, and by rotation both radial and circumferential movement can be obtained. The position of the object at any point is recorded by thrusting a long pin through to the second screen, located posteriorly, which is ruled according to the method of Duane. This allows the screen facing the patient to be free from any marks or pins which might distract his attention. The author emphasizes the importance of using artificial light of unchanging intensity for illumination.

P. Thygeson.

Farina, F. *Effect of acid vital stains on the eye*. Ann. di Ottal., 1928, v. 56, May, pp. 440-455.

The literature on vital staining of the eye is reviewed. The acid stains,

nile blue, lithiocarmine, and others, have been investigated chiefly after intravenous injection, the cells which contained dye granules being considered part of the recticuloendothelial system. The author used one per cent pyrrhol blue by instillation, and by injection into the anterior chamber and into the vitreous of white rats and rabbits, using normal animals and animals on which iridectomy or paracentesis had been performed. The epithelium offered an effective barrier to absorption of the dye after instillation. When applied by other methods, the fibrocytes, especially of the subconjunctival connective tissue, retained the stain. The only ectodermal tissue which absorbed the dye was the retinal epithelium. The scar tissue of operative scars absorbed the dye notably.

S. R. Gifford.

Fazio, G. *The hemistereoscope, a new apparatus for the diagnosis of simulated or feigned monocular amaurosis*. Arch. di Ottal., 1928, v. 35, Jan., p. 31.

The apparatus has a rectangular shape, similar to a small photographic camera, and it combines all of the salient features of the various means at present used to diagnose this condition.

It permits, first, limitation of vision in one or both eyes; second, crossed vision respective to the visual axis of either eye; third, transformation into a stereoscope. It establishes accurately and rapidly the diagnosis of true or simulated amaurosis, and at the same time it measures the acuteness of vision in the event that only diminished vision exists in the eye claimed to be amaurotic. The detailed description of the apparatus, and the photographs, should be consulted by anyone interested.

A. A. de Yoanna.

Mazzucconi, M. Acuteness of vision in relation to the system of illumination used. Arch. di Ottal., 1928, v. 35, Feb., p. 49.

On numerous occasions the author has had occasion to reexamine individuals whose vision had been found perfect when it was not so; or different results were obtained at different times due to variations in daylight or artificial light. After a lengthy discussion, he comes to the conclusion that the best means of studying acuity of vision is by means of the "photoptometer," because its results are much more precise and concrete than with any of the other means at present in use.

A. A. de Yoanna.

Nichelatti, P. The normal pressure of the cerebrospinal fluid. Ann. di Ottal., 1928, v. 56, Oct., pp. 887-906.

The importance of using a manometer is emphasized, not only in recording the initial pressure, but to judge when the pressure has been reduced so that no more fluid may be safely withdrawn and also to record the pressure under special conditions. Estimation of the pressure in the retinal vessels by Bailliart's dynamometer will reveal an increased intracranial pressure before choked disc occurs, and if this is not confirmed by the pressure recorded at lumbar puncture a block must be suspected.

Estimates of the normal pressure vary considerably, due to difference in

the technique by which the test is performed. Using the manometer of Claude, the author found that in fifteen normal persons the average pressure in the horizontal position was ten to twenty cm. of water, and in the erect position forty-eight to fifty-two cm. The more the head was inclined forward, the less the pressure, this varying from twenty-two to forty-one cm. when head and trunk were flexed. Uniformity of technique was easier to secure in the erect position. Queckenstedt's test as to increase of pressure during pressure on the jugular was always positive.

S. R. Gifford.

Stewart, D. S. A combined ophthalmoscope, retinoscope, and hand slit-lamp. Brit. Jour. Ophth., Oct., 1928, v. 12, p. 519.

The optical system of the instrument comprises a straight spiral filament (the source of illumination), a double planoconvex lens, modifying slides, a focusing lens and a mirror with a supplementary lens and alternative mirror for special purposes.

As an ophthalmoscope, the light from the filament is rendered parallel by the condenser and falls upon a platform which carries two channels to receive the modifying slides. For retinoscopy, a one millimeter hole or a half millimeter slit with a ground glass is provided. With the focusing lens in its primary position a parallel beam results; by moving the lens up or down divergent or convergent beams may be obtained. When the instrument is required for slit-lamp purposes, the focusing lens is set to the primary position, which renders parallel the rays from the slit to be inserted in the platform channel. (One illustration.)

D. F. Harbridge.

Trantas. Gonioscopy or ophthalmoscopy of the iris angle. Arch. d'Ophth., 1928, v. 45, Oct., p. 617.

The writer's studies were begun in 1899. He uses the ophthalmoscope and the diaphanoscope. He believes his

method to be superior to the use of the contact glass. Detailed description of his technique was given, and also of the appearance of various lesions. He believes that the canal of Schlemm is filled with a colorless fluid and not with blood. He emphasizes the use of the diaphanoscope, as without its use one may mistake swelling of the iris for angle adhesions. *M. F. Weymann.*

2. THERAPEUTICS AND OPERATIONS

Antonibon, A. Modification of the action of some ophthalmic drugs by potassium. Ann. di Ottal., 1928, v. 56, May, pp. 403-419.

Several authors have claimed that the addition of potassium salts to local anesthetics increases their effect. The author tried to confirm this with respect to the action of cocaine, novocaine, stovain, tropococaine, eucaine, holocaine, and tubocaine, and also of the common cycloplegics and miotics on the normal human cornea, adding KC1 to these drugs to make a concentration of one per cent. With two per cent cocaine, the average time required to abolish the corneal reflex was 31.2 seconds, while with cocaine and KC1 this was reduced by about a half (16.3 seconds). A definite reinforcing effect, though somewhat less marked, was noted with one per cent cocaine and two and four per cent novocaine. With the other anesthetics, the effect of KC1 was less marked.

In the case of the mydriatics, the size of the pupil was noted at intervals until maximal dilatation. With atropin and KC1, mydriasis developed at about the same rate, but dilatation from one to two mm. greater was produced than with atropin alone. A definite reinforcement of the mydriatic effect of scopolamin and eumydrin but not of homatropin was noted.

With eserin, no increase in the miotic effect was noted, but with pilocarpin this increase was definite, averaging 0.6 mm. A definite increase in the effect on tension was also noted with eserin in normal eyes, while in a case of glaucoma this difference was marked.

The reinforcing effect of KC1 on the action of some drugs must be considered as an example of true synergism, since KC1 alone causes no effect similar to that of these drugs. The author suggests that this synergistic effect may prove of practical value in the use of eserin for glaucoma. (Bibliography.)

S. R. Gifford.

Ayuyao, C. D. Intraorbital anesthesia in enucleation of the eyeball. Jour. Philippine Islands Med. Assoc., 1928, v. 8, April, p. 173.

Ayuyao used intraorbital anesthesia in twenty-five enucleations in adults, with excellent results. His technique is to inject from five to seven c.c. of two per cent novocaine solution (with magnesium sulphate and adrenalin) into the region of the ciliary ganglion, the needle entering the bulbar conjunctiva at the external canthus and gliding along the external rectus muscle for four cm. As a preliminary the conjunctiva is anesthetized with four per cent cocaine. *P. Thygeson.*

Caramazza, F. Autoserum therapy (autoaqueous therapy) in hypopion keratitis. "Saggi di Oftalmologia" (collected papers of Di Marzio Clinic, Rome), 1928, page 136.

A new method of serum therapy, the principal procedures of which are: the emptying of the anterior chamber by means of a one c.c. syringe with a small needle, puncture being made at the limbus preferably in the upper segment; and the injection of this extracted aqueous subconjunctivally. This method of emptying the chamber is better than either paracentesis or corneal section, as it obviates the possibility of infection of the borders of the wound, and of prolapse or incarceration of the iris. Not removing the pus is of no consequence, because this is only a symptom of the disease, and it is readily absorbed when the virulence of the invading organism is overcome and the spreading of the corneal lesion is arrested. Like all subconjunctival

injections the introduction of the aqueous produces an irritation which favors the passage of natural healing forces. Bietti has shown that after removal of the aqueous humor there is produced a marked hyperemia of the uveal tract facilitating entrance of opsonins into the anterior chamber. From this it would seem that each succeeding extraction of aqueous would have a greater opsonic power, and its reinjection would have a more marked therapeutic value. This was definitely shown to obtain in Caramazza's series of cases. Puncture and injection were done once in twenty-four hours, frequently repeated three and four times. Reaction was never great, being limited entirely to the point of inoculation and having almost entirely disappeared at the end of twenty-four hours.

Solon L. Rhode.

Frydman, R. **Protein therapy in ophthalmology.** Rev. Gén. d'Ophth., 1928, v. 42, March, p. 85.

All hypotheses attempting to explain the action of protein therapy belong to two different conceptions: (1) The Germans with Weichardt attribute the principal rôle to chemical action. (2) Widal and his pupils consider that the physical changes of a colloidal nature are most important. The author summarizes the methods and very variable results of treatment by fourteen different investigators. At the ophthalmic clinic of the university of Geneva the author treated fourteen cases with cibalbumin, which contains one per cent egg albumen. Ocular affections of gonococcal origin undoubtedly were improved by the protein treatment. In iritis the results were often transitory, and relapses were frequent both during and after treatment. One case of serpiginous ulcer of the cornea was cured by the treatment; another was not affected. The results were excellent in a case of panophthalmitis due to a perforating foreign body.

The author concludes that protein treatment by intramuscular injection presents no danger for either the gen-

eral organism or the eye and is easily applicable to ambulatory cases; that it gives remarkable results in a large number of ocular affections, especially of the deep membranes; but that it is not a panacea. (Thirty-one references.)

J. B. Thomas.

Gala, A. **Iodine content of the aqueous humor of the human eye following parenteral, oral and external administration of iodides.** Oftalmologicky Sbornik, 1928, v. 2, p. 229.

The article contains a tabulated report of the examination of the aqueous humor of thirty-four human eyes for their iodine content, in order to determine whether iodine appears in the aqueous humor after the injection of iodine salts or its instillation into the conjunctival sac. The aqueous humor was aspirated from the eye with a syringe. It was found that, fifteen minutes after the intravenous injection of five grains of sodium iodide in a ten per cent aqueous solution, iodine occurred in the aqueous humor. It reached its maximum concentration in two to four hours, began to diminish in five hours, and was not demonstrable after sixteen hours. After oral administration of the same quantity it took one hour for it to appear in the aqueous humor, and it maintained about the same concentration as after intravenous injection and disappeared after twenty hours. It could not be demonstrated in the aqueous humor after the subconjunctival injection of one cm. of one per cent sodium iodide solution; or after instillation into the conjunctival sac of a ten per cent sodium iodide solution twelve times in one hour. However, in eyes which had been cocaineized with a five per cent cocaine solution previously or with the instillation of sodium iodide, a trace of iodine could be demonstrated. The authors therefore consider instillation of iodides into the conjunctival sac or subconjunctival injections as useless procedures.

Ray K. Daily.

Preobraschensky, P.M. **Plastic surgery on a tubular pedicle in the experi-**

ence of Russian ophthalmologists. *Russki Opht. Jour.*, 1928, Aug., pp. 233-243.

Plastic surgery on a tubed pedicle was introduced in ophthalmology by Filatow in 1916. Independently, but somewhat later, the method was proposed by Gillies (Surgery, Gynecology, and Obstetrics, 1917). In the experience of twelve Russian ophthalmologists, who used the graft on a tubular pedical in twenty-five cases, this method proved to have the advantages of pedical flaps—namely, good viability and slight shrinkage—and in addition that of free grafts, i.e. the possibility of obtaining the necessary material from distant areas. Of the many technical details which are brought out by the author, that of "training" the pedicle with a view to increasing its plastic resistance is particularly interesting. This training consists of various procedures from interfering with the collateral blood-circulation through incisions at the base of the pedicle to systematic strangulation of the part of the pedicle which is to be transplanted.

M. Beigelman.

Tieri, A. Fixation of the globe with the angular fixation ophthalmostat. *Ann. di Ottal.*, 1928, v. 56, May, pp. 431-439.

Various methods of fixation are discussed, most of which are at fault in only fixing one point, and allowing of motility in certain directions. Tieri describes an instrument designed to hold the eye at three points. This is made with two curved branches, each bearing a point, the third point of fixation being at the junction of the two branches with the handle. If this is placed below the lower limbus, the two points fix the conjunctiva on either side of the cornea, and the eye is held at three points.

The author also describes a cataract knife, the handle of which is corrugated on the back side only, so that the operator is less likely to insert it upside down.

S. R. Gifford.

Vasek, E. *Miscellanea collected from modern ophthalmologic therapy*. *Oftalmologicky Sbornik*, 1928, v. 2, p. 207.

Knapp's tattooing with two per cent acid gold chloride solution without adrenalin or tannic acid was tried in ten cases. In old dense leucomas it was a failure; the thin leucomas were colored dark purple, but after one year a diminution in the depth of color was apparent.

Lagrange's colmatage for raising intraocular tension was performed in two cases of myopic retinal detachment and one case of traumatic detachment in a hyperopic eye. Only the last case remained for observation; the tension rose, the retina reattached itself, the field of vision widened, and vision rose from perception of hand movements to 5/15.

Irradiation of serpiginous ulcers with the Birch-Hirschfield lamp was no more efficacious than galvanocautery.

Glaucosan was used in one case of advanced simple glaucoma, in two cases of glaucoma secondary to occlusion of the pupil, and in one case of iridocyclitis with high tension. In the last case the result was good; in the two secondary glaucomas intraocular tension rose further. Iridectomy was performed on the primary glaucoma after a few glaucosan treatments.

Two cases of retrobulbar neuritis were treated with intranasal tampons of cocaine-adrenalin. In one case the treatment was combined with inunctions of grey ointment, and this case recovered promptly. In the other case two months tamponage improved vision from hand perception or hand movements to 5/50; after two series of mercurial inunctions it rose to 5/15.

Ray K. Daily.

Zuckermann-Zicka, Z. *Light therapy in ophthalmology*. *Oftalmologicky Sbornik*, 1928, v. 2, p. 219.

The writer is very enthusiastic about the effectiveness of ultraviolet and x-ray therapy in eye diseases. In ec-

zematous keratoconjunctivitis she is very successful with ultraviolet irradiation. She irradiates the entire body, except the head, with two lamps, one in front and one behind, every other day. When the treatment ceases to produce an erythema, the irradiations are discontinued for two or three weeks and then resumed again. The eyes should be carefully protected; exposure to light may produce a stubborn and painful conjunctivitis. In tuberculous affections of the uvea, she combines ultraviolet irradiations of the entire body with local x-ray therapy. In intractable cases of squamous blepharitis and chalazia which resisted every other method of treatment, she obtained good results with an x-ray exposure after protecting the eyeball with a glass prosthesis. Eighty per cent of epitheliomas of the lids were cured by x-rays. She reports a case of myxoepithelioma of the orbit treated with x-ray, in which there was no recurrence after three years.

Ray K. Daily.

3. PHYSIOLOGIC OPTICS, REFRACTION, AND COLOR VISION

Diaz-Caneja, E. *Binocular alternation.* Ann. d'Ocul., 1928, Oct., v. 165, pp. 721-730.

The title of the article is the descriptive term used by Bose for the alternating perception of nonfusible objects seen stereoscopically. Binocular vision according to Bose is composed of very rapid alternation of monocular vision. The author admits the alternation described by Bose but does not admit the regularity of it. In a colored chart designed by himself, he shows that the alternance is more regular if an eccentric point on the chart is chosen for fixation. For this and other reasons he thinks that attention does not hold the importance attributed to it. Though attention is a factor, this does not make the problem purely psychological.

T. L. Post.

Fileti, A. *Subjective stigmatoscopy with light filtered through methylene blue.* Ann. di Ottal., 1929, v. 56, Apr., pp. 289-299.

This paper describes an elaboration of Gullstrand's observation of the effect of refractive errors on the subjective image of a point of light, by which the optical aberration of the eye may be studied. It does not adapt itself to abstracting.

S. R. Gifford.

Grunert, K. *Pilocarpin in painful asthenopia.* Klin. M. f. Augenh., 1928, v. 81, July, pp. 44-58. (3 tables.)

Grunert reports on one hundred cases of painful asthenopia successfully treated with pilocarpin, mostly in emmetropia or myopia. He explains the painful asthenopia with increasing refraction as due to stretching of the ocular tissues in prolongation of the axis, and suggests that this pain may be termed tension pain. Some clinical histories are briefly given.

C. Zimmermann.

Hecht, Selig. *Visual acuity and illumination.* Arch. of Ophth., 1928, v. 57, Nov., pp. 564-573. (See abstract from another source, page 748 of the September, 1928, issue of the American Journal of Ophthalmology.)

Kleitman, N., and Blier, Z. A. *Color and form discrimination in periphery of retina.* Amer. Jour. Phys., 1928, v. 85, June, p. 178.

In a study of form and color discrimination in the peripheral retina, Kleitman and Blier question the identity of form and white light and consider white as much of a color as red, green, etc. They found the visual fields in three subjects, as determined simultaneously for six colors, to be, in decreasing order of extension: blue, red, white, yellow, green, gray. Fields of vision for form were determined by discrimination of geometric objects.

P. Thygeson.

Levy, A. H. *Telescopic spectacles.* Brit. Med. Jour., 1928, no. 3531, Sept. 8, p. 438.

Levy describes the important optical facts and the precautions necessary in

prescribing and fitting telescopic spectacles.
P. Thygeson.

Lineback, P. **Some observations on the mechanism of double vision.** A preliminary paper. *Anat. Record*, 1928, v. 38, pp. 193-202.

In this article the author describes a simple apparatus for determining the difference between the master eye and the other. In eighteen subjects the measurement from center of fovea to outer edge of disc was 3.3 mm. in the master eye as compared with 3.9 in the other eye.
L. T. Post.

Newton, F. H. **Primary myopia: an analysis of 500 cases.** *Texas State Jour. of Med.*, 1928, v. 24, May, pp. 33-36.

Newton analyses 500 cases of primary myopia occurring in his practice according to the period and progression. He comments on the fact that in 123 cases showing myopic astigmatism only no spherical myopia developed, which is contrary to the frequently quoted expression that the "eye passes to myopia through the turnstile of astigmatism."
P. Thygeson.

4. OCULAR MOVEMENTS

Bramwell, Edwin. **The upward movement of the eyes.** *Brain*, 1928, v. 51, March, pp. 1-17.

This is a somewhat diffuse discussion of this coordinated action, but includes a consideration of other movements such as blinking, the position of the eyes in sleep and in anesthesia, and so on. The central representation of the upward movement is probably in the brain stem in the vicinity of the oculomotor nucleus. This action occurs occasionally in epidemic encephalitis. Its association with parkinsonism is stressed.
L. T. Post.

Dodge, R., and Fox, J. C., Jr. **Optic nystagmus.** *Arch. Neur. and Psychiatry*, 1928, v. 20, Oct., p. 812.

Dodge and Fox in a preliminary report point out the fundamental prob-

lems concerned in optic nystagmus and the growing clinical importance of the phenomenon. A study of a case with central scotoma of the right eye and external rectus palsy of the left eye proved conclusively that optic nystagmus could be evoked by peripheral retinal stimulation as well as central.

P. Thygeson.

Holterdorf, A. **Paroxysmal tonic ocular spasm in chronic myastatic encephalitis.** *Münch. med. Woch.*, 1928, June, p. 1118.

Of a series of twenty cases of chronic encephalitis eight (forty per cent) showed tonic ocular spasm which lasted from a few minutes to several hours. In most cases the eyes are drawn up, but they may deviate downward, straight forward, or occasionally laterally, and remain thus for fifteen minutes to several hours. Consciousness is not disturbed, and there is no muscular rigidity, but the patient may feel weak or dizzy during the attack. He is unable to control the spasm, except perhaps for a short while. The first two cases observed were treated by the author for hysteria without any improvement. Atropin gives doubtful results but hyoscin is of some value. The prognosis is poor and the condition may last for years. As some of these cases have no other symptoms, they consult an oculist first, and it is important for the latter to recognize the condition. (See Lampl, below.)

M. L. Folk.

Kurz, Jaromir. **Paresis of associated eye elevators in an aviator.** *Oftalmologicky Sbornik*, 1928, v. 2, p. 437.

An aviator thirty-six years of age, who made a series of flights into high altitudes, developed a paralysis of elevation after a rapid descent from a height of five thousand meters. With this paralysis there was also paresis of the left superior oblique and of the internal branch of the right oculomotor. The paralysis of elevation disappeared in four days, the other symptoms in ten

days. While the patient could not voluntarily look up, a quick movement of the eyes upward could be observed when a light was suddenly flashed from high up in a dark room. When the lids were closed the eyeballs rotated normally upward. When he fixed an object in a horizontal plane and his head was bent down, a movement of the eyes upward occurred. Consequently this is diagnosed as a supranuclear paralysis probably due to small hemorrhages. The hemorrhages might have been caused by a circulatory disturbance or by a lack of oxygen in the high altitude.

Ray K. Daily.

Lampl, Otto. **Paroxysmal tonic ocular spasm in chronic myastatic encephalitis.** *Münch. med. Woch.*, 1928, Aug., p. 1504.

The author divides the cases into two groups: (1) those in which the eyes deviate in various directions, (2) those in which the eyes remain in the midline, looking straight ahead. While the former is not influenced by therapeutic measures, the latter is improved by atropin, hyoscine, calcium, and phosphorus. Of the second group the author had twenty-one cases, which in the main resembled epilepsy. The convulsions lasted only fifteen to thirty minutes, but were followed by stupor lasting from several hours to two days. He thinks the prognosis is much better than Holtendorf (see above) would have us believe.

M. L. Folk.

Langdon, H. M. **Chronic progressive external ophthalmoplegia.** *Brain*, 1928, v. 51, p. 3, pp. 321-333.

A typical case of this disease was found at autopsy to have marked changes in the cells of the oculomotor nuclei, both as to number and appearance. The nerve fibers appeared diminished in number.

L. T. Post.

Smith, K. R. **Concomitant strabismus and heterophoria. Children's squint and heterophoria.** *Brit. Jour. Ophth.*, 1928, v. 12, Nov., p. 581.

Both as to squint and as to hetero-

phoria, the author suggests the following definition: a defect of vision in which binocular vision is absent, and there is deviation in the direction of the eyes, so that the visual axes are not directed to the same object. This definition includes both squint and heterophoria. In heterophoria the conditions described are occasional. In squint they are sufficiently constant to be regarded as permanent.

By means of the binoscope (an adaptation of the stereoscope, recently suggested by K. R. Smith) one is able to observe that the eyes apparently deviate because they do not both see at the same time. In this apparatus three ordinary playing cards can be placed in a row so that the patient sees the center card with both eyes, that on the right with the right eye only, and that on the left with the left eye only. Most children with squint, when asked how many cards they can see, reply at once, "three". With binocular vision both eyes see the cards and the deviation ceases to be observable for the time. Some children see four cards at first, the center one twice, but after some practice they see three readily with no other stimulus than that of vision with both eyes at the same time brought about by the binoscope. Diplopia is thus the natural proof that binocular vision does not exist. In children's squint, it shows that here is vision in both eyes at the same time, and central vision in both is practically certain to follow as the power to retain vision in both increases.

D. F. Harbridge.

Whitmire, A. L. **Observations on the surgical correction of squint.** *New Orleans Med. and Surg. Jour.*, 1928, v. 80, April, p. 618.

Tucking without recession, followed by slipping of sutures and the production of deformities so objectionable to patients, is fundamentally wrong in that to tighten one lateral without loosening the opposite muscle gives rise to restricted motion or retraction of the globe. The short muscle is

also at fault and must undergo recession to produce a necessary balance. Resection with recession, suturing the resected muscle to the sclera with twenty-day 00 chronic catgut, is a great improvement over other methods. (Seven photographs of patients before and after operation.)

George H. Stine.

5. CONJUNCTIVA

Armstrong, J. J. P. **Radiant light in gonorrhreal ophthalmia.** Physical Therapeutics, 1928, v. 46, April, p. 159.

Using a deep therapy lamp of 1500 watts with a white globe, Armstrong treated eighty cases of gonorrhreal ophthalmia, all in the second stage. Smears were examined in thirty-four cases and found positive, the rest being taken for granted from the history. Twelve men had a cloudy cornea and two had beginning marginal ulcers. The average number of light treatments was nine, the light being used twice daily, one hour at a time. The least number of treatments was eight, and the greatest fourteen. At the end of this time all pain, swelling and pus had disappeared, and the patients were discharged with a zinc lotion to be used every two or three hours.

Only the eyes are exposed. The light is applied at a distance of eighteen inches and gradually raised to twenty-five or thirty inches according to tolerance, and left for one hour. This is done twice daily. Compresses of hot Epsom salts in solution are applied at home by the patient himself every fifteen minutes, followed by irrigation with fresh twenty per cent argyrol every four hours. Other local measures are used as indicated. Relief of pain is prompt and the healing process is speeded up. One illustrative case is reported.

George H. Stine.

De Logu, Antonio. **Autohemotherapy and autoserotherapy in the treatment of trachoma.** Arch. di Ottal., 1928, v. 35, Jan., p. 8.

In Italy, through the efforts of Angelucci, the study of the relation of trachoma as a local manifestation of a general constitutional disorder has again been resumed, also its treatment with autohemotherapy and autoserotherapy. The conclusions arrived at by the various experimenters in reference to this form of therapy have been very encouraging in some cases, some less encouraging, and others complete failures. The technique advised by Angelucci is as follows: Blood is drawn from the patient, about five to ten c.c., and it is immediately injected subcutaneously. Usually from two to five injections are sufficient and they are given daily. In reference to the serum, the blood is drawn from the patient, it is defibrinated, and the serum is placed in sterile glass vials. Injections are given on alternating days, subcutaneously or under the bulbar or palpebral conjunctiva. Twenty to thirty injections are usually sufficient.

De Logu has tried this therapy at the university of Milan on various forms of trachoma. His conclusions are as follows: This form of therapy has been of benefit only in those cases of trachoma which were part of a general status lymphaticus but, while in true trachoma in conjunction with local treatment it gave satisfactory results, alone it did not give such results as reported by Angelucci.

A. A. de Yoanna.

Noguchi, Hideyo. **Etiology of trachoma.** Jour. of Exper. Med., 1928, v. 48, Aug., supplement no. 2. (See abstract from another source on page 252 of the March, 1928, issue of the American Journal of Ophthalmology.)

Stibbe, E. P. **The nictitating membrane of birds and mammals.** Jour. of Anatomy, 1928, v. 62, Jan., pp. 159-176.

The anatomy of the nictitating membrane of birds is discussed and illustrated as also that of a typical mammal. Of the three muscles governing the action of the nictitating membrane

there are not even rudiments in mammals. The structure of the two is entirely different, the nictitating membrane being composed of connective tissue for the most part, while the mammalian membrane contains cartilage and glandular tissue. The conclusion is that structurally and functionally the two are totally different. The name plica intercipiens is suggested for the membrane in mammals.

L. T. Post.

Zachert, M. Trachoma in Tunis.
Klinika Oczna, 1928, July, pp. 72-76.

The author examined 1,840 school children in Tunis and found that eighty per cent of them were affected with trachoma. The general character and course of trachoma in Tunis are more malignant than in Europe.

M. Beigelman.

6. CORNEA AND SCLERA

Beselin, O. Central sclerosing keratitis. Klin. M. f. Augenh., 1928, v. 81, July, pp. 25-29. (1 col. pl. 10 ill.)

Beselin observed for fifteen years a woman, the vision of whose eyes gradually deteriorated by progressive opacities of the corneas, all treatment being of no avail. This central sclerosing keratitis in tuberculous iridodiscokeratitis, occurring in isolated white dense round or oval opacities, occupying the whole parenchyma, with marginal zones, gradually increasing, is very rare.

C. Zimmermann.

Braun, G. Tattooing of the cornea.
Klin. M. f. Augenh., 1928, v. 81, July, pp. 72-75.

In a woman aged sixty-eight years tattooing of an intense leucoma with platinum chloride, according to Krautbauer, failed on account of the instability of the solution, the glass of the bottle acting as catalyzer of the hydrazin hydrate. Braun recommends giving the bottle a coating of paraffin. In two other cases the use of fresh concentrated solutions gave good cosmetic effects.

C. Zimmermann.

Brückner, Z. Causes of regression of serpiginous ulcers after perforation of the cornea. Oftalmologicky Sbornik, 1928, v. 2, p. 127.

From a study of fifteen cases of serpiginous ulcer in which the cornea perforated either spontaneously or following cauterization, the author concludes that the healing of the ulcer following perforation is due to the fall in intraocular tension. Diminution in tension permits of an active transudation of antibodies and nutritive material from the congested marginal vascular loops into the diseased corneal tissue. This increased transudation manifests itself as an edema of the cornea which can be studied with the slit-lamp. In this series of cases the improvement and rapidity of healing were in proportion to the fall in intraocular tension. Where the diminution in intraocular tension was insignificant or of short duration, there was no improvement in the course of the disease or the improvement was followed by a relapse.

Ray K. Daily.

Brückner, Z. Influence of antiseptics and galvanocautery on the course of serpiginous ulcer. Oftalmologicky Sbornik, 1928, v. 2, p. 1.

The writer reviews the history of 285 cases of serpiginous ulcer treated at the Czech Ophthalmological Clinic from 1921 to 1924. Seventy per cent of the cases began with an injury, although no particular injury had any predisposition toward this type of infection. In thirty per cent the lacrimal passages were found diseased. Fifty-two of the ulcers terminated in corneal perforation and seven in loss of the eye. Among the ulcers that perforated were all of the deep ulcers involving more than one-third of the corneal surface; of 172 deep ulcers less than six mm. in diameter fifty per cent healed without perforation. The author reviews in detail the literature of the use of the various medicinal agents, which include all

antiseptics. In his own cases zinc sulphate, tincture of iodine, optochin, zinc ionization, silver nitrate stick, and galvanocautery were the medicinal agents employed. He concludes that, in superficial ulcers due to the pneumococcus, tincture of iodine, optochin, and zinc ionization give excellent results; in diplobacillus ulcers, twenty per cent zinc sulphate and zinc ionization; and, if the ulcer continues to progress, galvanocautery. In most cases of deep ulcers involving over one-third of the corneal surface, antiseptics and galvanocautery are powerless to prevent perforation. He argues that no prognosis can be made in any given case, because the course of the disease depends on the natural immunity of the corneal tissue and the virulence of the microorganisms, both of which are unknown factors in every case.

Ray K. Daily.

Chou, C. H. **A typical form of familial degeneration of the cornea (Fleischer).** Arch. of Ophth., 1928, v. 57, Nov., pp. 574-581.

This disease was first described by Fleischer in 1905. It involves the central portion of the cornea and consists in many small ring-shaped opacities together with punctiform and nodular or snow-flake-like opacities occupying the central portion of the cornea. The corneal surface was even and the substance between these rings was clear. Very few cases of the disease have been described from time to time. The author examined such a case with the slit-lamp and found the larger nodules to be rather irregularly outlined opacities, as though they were formed of numerous fine particles. They lay in the anterior portion of the stroma, occasionally involving Bowman's membrane. The nerve filaments were somewhat abnormally visible. All these cases excepting the author's were found associated with similar conditions in other members of the same family. They belong under the general specification of familial de-

generation of the cornea. The prognosis is better, however, than in other types of this group. The etiology is obscure. Pillat believes it is primarily a nerve disease. Pascheff believes the corneal corpuscles first become opacified and later that degeneration of the nerves takes place. Fuchs does not believe the nerves are affected and is of the opinion that it is primarily a degeneration of the corneal lamellæ. Heredity certainly plays an important rôle.

M. H. Post.

Engelking, E. **On corneal and conjunctival changes from insufficient lacrimal secretion, a contribution to the etiology of filiform keratitis.** Klin. M. f. Augenh., 1928, v. 81, July, pp. 75-84. (1 col. pl.)

Immediately after extirpation of both lacrimal glands of a man aged twenty-five years, on account of indolent tuberculosis, typical filiform keratitis set in. Schirmer's experiment with blotting paper showed complete lack of lacrimal secretion. This proved definitely that insufficient moisture may produce the picture of chronic filiform keratitis. Mucous filamentous secretion is a characteristic sign of insufficient lacrimal secretion. The same was observed in another case after extirpation of the gasserian ganglion, in which also the secretory branches of the fifth nerve to the lacrimal gland were destroyed. Removal of the palpebral lacrimal gland is generally without danger, but the author advises previous tests of function.

C. Zimmermann.

Fietta, P. **Interstitial keratitis, the first localization in the course of a staphylococccemia.** Rev. Gén. d'Opht., 1928, v. 42, April, p. 125.

Although parenchymatous keratitis is so often of syphilitic origin, cases are caused by the most diverse agents, e.g., variola, grippe, parotiditis, nephritis, malaria, and dental and buccal infections. After syphilis the most common cause is tuberculosis.

The author reports the following case: Man sixty-four years' old, good health. Negative family history. Negative for syphilis, tuberculosis, or any recent infectious disease. A keratitis of the right eye developed, followed by turbidity of the aqueous and slow spread of inflammation to the iris, in spite of active, local and general treatment, including injections of egg albumen. After two months the patient developed furuncles of the left cheek and ear. Blood cultures were positive for *Staphylococcus aureus*. After a series of injections of staphylo-yatrin the furuncles disappeared rapidly but blood cultures remained positive. A second and then a third crop of furuncles developed and then abated under treatment. With each new exacerbation of furunculosis the eye became more inflamed and painful and the ocular symptoms abated with disappearance of the furuncles. The case emphasizes the importance of making blood cultures in all uncertain and obstinate cases of ocular inflammation. Fourteen references.

J. B. Thomas.

Isakowitz, J. **Endocrine periarthritis and filiform keratitis.** *Klin. M. f. Augenh.*, 1928, v. 81, July, pp. 85-86.

Isakowitz observed filiform keratitis with complete absence of lacrimal secretion in a woman aged fifty-three years. She suffered from severe arthritis of both hands and feet, indicating, according to the author, an endocrin disorder.

C. Zimmermann.

Knapova, F., and Brückner, Z. **Argyrosis of Descemet's membrane.** *Oftalmologicky Sbornik*, 1928, v. 2, p. 283.

The writers describe the slit-lamp appearance of an eye with argyrosis and unaffected vision, in a woman fifty years of age, who for a number of years had used silver nitrate drops. She had an argyrosis of the bulbar and palpebral conjunctiva, diminishing in intensity from below up. Under the slit-lamp the posterior plane of the

optical corneal section was strikingly distinct, opaque and greyish brown. It had a honeycomb pattern of irregular black spaces, outlined by greyish brown, wide, uneven trabeculae. This was most marked in the center of the cornea; in the periphery the spaces were wider, their irregularity of outline more marked and the trabeculae coarser. With indirect illumination the reticulate opacity was blackish brown. Magnified sixty-one times, the fine brown dots could be seen in the system of lymph channels. The endothelial mosaic in the posterior mirror zone was normal. The authors believe these changes to be an argyrosis of Descemet's membrane which, according to Knies, possesses a specific affinity for silver; the reticulated structure of the opacity is probably due to the involvement of the contiguous layer of dense elastic connective tissue, described by Seefelder as the lamina elastica corneæ. Their attempt to reproduce this condition experimentally in a rabbit by instilling into its eyes 0.5 per cent silver nitrate for eighteen months was negative on histologic and slit-lamp examination.

Ray K. Daily.

Rollet, Jacques. **Intracorneal injections, technique and indications.** *Arch. d'Ophthal.* 1928, v. 45, Nov., p. 681.

Intracorneal injections of drugs and dyes were made on animals and patients by anesthetizing the cornea and using a fine hypodermic needle entered in a tangential plane. A bleb formed resembling bullous keratitis. Two or three drops of solution could be injected, which absorbed in several hours or a few days. The point of the needle puncture always left a scar but no permanent damage resulted over the area infiltrated. Insufficient work was done to determine the effects of drugs so injected, but a leukoma injected with a solution of India ink gave a perfect cosmetic result without irritation.

M. F. Weymann.

Sabatzky, Kurt. **Experiments for clearing corneal opacities.** Klin. M. f. Augenh., 1928, v. 81, Aug.-Sept., pp. 274-279.

Sabatzky succeeded in clearing corneal opacities, first in twelve rabbits, and then in two patients, by applying wintergreen oil on the abraded opacities, making use of the known property of this oil of rendering anatomical specimens of tissues transparent. Only the places which came in direct contact with the oil cleared up. Its application is without danger, although it is at first irritating. Vision increased from 1/30 to 4/30, and from 1/15 to 5/30. *C. Zimmermann.*

Seefelder, R. **Denig's mucous membrane graft in trachomatous pannus.** Klin. M. f. Augenh., 1928, v. 81, July, pp. 68-71. (1 ill.)

Seefelder transplanted mucous membrane of the lower lip by Denig's method, on the right eye of a woman aged sixty-seven years affected with severe trachomatous pannus. The transplanted piece healed in, but it soon became trachomatous, and the pannus progressed. Microscopic examination revealed typical follicles and trachomatous infiltration in the graft, and the scraped epithelium contained typical Halberstädter-Prowazek inclusions. *C. Zimmermann.*

Stones, R. Y. **A case of partial staphyloma of the cornea.** Brit. Med. Jour. 1928, no. 3532, Sept. 15, p. 488.

Stones reports a case of partial staphyloma of the cornea in a young man eighteen years of age whose other eye was completely blind. The staphyloma occupied the lower and inner quadrant of the cornea and was gradually giving way. Operation was indicated and was done according to the method described by Abadie. Ten days after the operation the scar began to give way again due to slipping back of the conjunctival flap. The conjunctiva was then dissected back all around the limbus and a purse-

string suture inserted. After scarifying the cornea around it, the staphyloma was excised and the edges of the corneal wound drawn together with fine catgut sutures. The purse-string suture was tied, drawing the conjunctiva well over the cornea. Due to drawing over of the iris, an optical iridectomy was later necessary. A good visual result was obtained.

P. Thygeson.

Tranta, J. **General and local prognosis of parenchymatous keratitis.** Oftalmologicky Sbornik, 1928, v. 2, p. 575.

The author reviews in tabulated form twenty-four cases of parenchymatous keratitis of four to thirty-seven years standing. In fifteen eyes, the resulting vision was below 1/60; in twenty-two eyes, 20/40 or less; in ten eyes, above 20/40; in one eye, 20/20. There was secondary glaucoma in eleven per cent of cases and chorioretinitis in twenty-five per cent. On general examination 35.8 per cent of the patients were found normal; 35.8 per cent had involvement of the nervous system; and thirty-three per cent had positive Wassermann and Meinicke tests. *Ray K. Daily.*

Vejdovsky, V. **Blood vessels in deep keratitis of tuberculous origin.** Oftalmologicky Sbornik, 1928, v. 2, p. 305.

From a slit-lamp study of interstitial keratitis of established tuberculous origin the author concludes that the arrangement of the deep blood vessels may serve to differentiate deep keratitis of tuberculous from that of syphilitic origin. In tuberculous keratitis the blood vessels appear relatively early; a few at first, increasing in number toward the height of the disease. Springing from the deep scleral vessels they proceed through the healthy cornea straight or somewhat undulating. Just before entering the infiltrated area they give off numerous branches which again ramify a
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fy and interlace so that each vessel has the appearance of the trunk of a tree with its branches, while the infiltrated area covered with the interlacing blood vessels simulates a ball of twine.

Ray K. Daily.

Vujtech, K. **Influence of age and season of the year upon the clinical course of serpiginous ulcer.** Oftalmologicky Sbornik, 1928, v. 2, p. 545.

In order to verify Wessely's assertion that the prognosis of serpiginous ulcer of the cornea becomes graver with advancing age and that the course of the disease is more severe in winter and summer than in autumn and spring, the author reviewed 393 cases treated from 1910 to 1920 and from 1924 to 1925 in the Czech Ophthalmic Infirmary in Prague. As signs of severe involvement he considers ulcers over six mm. in size and with corneal perforation. His statistics show that the prognosis is graver with advancing age, but the season of the year has no effect on the course of the disease.

Ray K. Daily.

Winkler-Prins, C. **Clear corneal bands.** Ann. d'Ocul., 1928, v. 165, Oct., pp. 731-742.

A brief review of the different hypotheses as to clear streaks in the corneas in cases of old lesion is given. Experimental studies made on tuberculous corneas of rabbits which showed clear bands indicated that these were the vessel walls, while the outlying opacities were deposits from a solution of sanocrysin injected intravenously. Four beautiful plates show the deposits of this drug, two when used intravenously and two when instilled. Two kinds of spots were noted, a brown and a deep blue. Tissue reactions suggested that the former represented a sulphide of gold and the latter metallic gold. The granules were found to be situated in the histiocytes and from this it was argued that the therapeutic value of the drug rested primarily on the action

of these cells and the entire reticuloendothelial system. *L. T. Post.*

7. UVEAL TRACT, SYMPATHETIC DISEASE, AND AQUEOUS HUMOR

Brückner, Z. **Cured sympathetic ophthalmia in a luetic patient after perforation of the cornea due to serpiginous ulcer.** Oftalmologicky Sbornik, 1928, v. 2, p. 393.

The author reports a case in a watchmaker thirty-eight years of age. He suffered a perforation of one eye due to serpiginous ulcer, which healed with an adherent leucoma. Two months later he came to the clinic for defective vision in the uninjured eye. There was some peripapillary clouding of the retina. On the following day there was cloudy precipitation in the vitreous and a flat retinal detachment; four days later minute precipitations on the posterior corneal surface were seen with a slit-lamp. The eye with the leucoma was enucleated and sodium salicylate and benzosalin were administered; the disease continued to advance and within four weeks vision was diminished to fingers at one meter. At the end of the fourth week the patient complained of tinnitus and defective hearing, which aroused suspicion of syphilis. Serum tests were positive, and under syphilitic treatment he made a complete recovery with normal vision; in the region of the former retinal detachment there remained some chorioretinitic pigmentation. Histologic examination of the enucleated eye showed the sequelæ of perforation and an inflammatory process in the uvea characteristic of sympathetic ophthalmitis. Because of the serologic test and the cure with syphilitic therapy the author is of the opinion that this was a luetic disturbance, in spite of the fact that the clinical course and histologic findings pointed to sympathetic ophthalmia. A similarity of the described case to sympathetic ophthalmia suggests to him a common pathogenesis and justifies the theory of endogenous origin

of sympathetic inflammation. The disturbed uvea of the perforated eye may have rendered the uvea of the other eye sensitive to a virus circulating in the blood—in this case, the luetic virus.

Ray K. Daily.

Caesar, J. **Reaction to liquor Bellotti in ophthalmology.** Oftalmologicky Sbornik, 1928, v. 2, p. 153.

The urine test with Bellotti's solution ($Hg_2 N_2 O_6$), which, according to Butenko, is positive in cases of progressive paralysis, occurs in many ocular diseases, principally in parenchymatous keratitis, tabetic atrophy of the optic nerve, iritis, iridocyclitis, and senile cataract, and also after milk injections. It is not significant of any definite disease.

Ray K. Daily.

Derby, G. S. **The nature of so-called Koeppen nodules.** Arch. of Ophth., 1928, v. 57, Nov., pp. 561-563.

The author observed a case in the right eye of which some precipitates on the posterior surface of the cornea and many cells in the anterior chamber were seen with the slit-lamp. The iris was studded with many translucent nodules. These were found along the pupillary margin and on the surface back to and beyond the lesser circle. The iris was somewhat atrophic and the lens was cataractous. In the left eye there were some vitreous opacities, and above and to the temporal side of the disk there was an area of choroidal atrophy with a veil-like membrane extending into the vitreous. Definite tuberculous lesions were found at the apex of either lung. Lues was ruled out by numerous examinations. Verhoeff found the iris free from tubercles and lymphocytic nodules. There was considerable infiltration with plasma cells. The nodules before noted were composed of collections of these cells. The author is of the opinion that they are typically tuberculous. He also believes that lesions such as those seen in the left eye are very probably of tuberculous origin. It is interesting to note that

the cataract was removed without difficulty.

M. H. Post.

Derer, J. **Chorioretinitis juxtapapillaris.** Oftalmologicky Sbornik, 1928, v. 2, p. 467.

Because in his two cases, as well as in most of the twenty-seven cases collected in the literature, the disease was accompanied by iritis, precipitates on Descemet's membrane, and special forms of vitreous opacities, he argues that the retinal inflammation represents an iridocyclitic exudate which has travelled through a pathologically altered vitreous, entered the retina, and having reached the choroid, set up there a circumscribed inflammation. The author points out that in 28,000 cases of fundus examination the disease was found only three times, which does not agree with the assertion of Rønne that the disease occurs in one per cent of ocular affections.

Ray K. Daily.

Kolen, A. A. **Action of toxins of *Staphylococcus aureus* and of tubercle bacilli upon the uvea. (Pathogenesis of sympathetic ophthalmia.)** Russkii Oph. Jour., 1928, Sept., pp. 320-345.

Following the introduction of the filtrate of staphylococcus cultures and of collodion sacs containing tubercle bacilli into the vitreous of rabbits, the author found a diffuse infiltration of the uvea with predominance of lymphocytes and plasma cells. The other eye was free from any inflammatory changes in all cases where the staphylococcus toxins were used. In fifty per cent of the cases in which the experiments were carried out with tubercle bacilli, a chronic proliferative choroiditis developed also in the fellow eye (sympathetic ophthalmia?). The histologic picture in the exciting eye, contrary to the results of Guillory, was not of the type of granuloma which is characteristic of sympathetic ophthalmia, but the author is inclined to consider the proliferative choroiditis in his cases as an early stage of the sympathetic reaction.

M. Beigelman.

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Leser, O. Contribution to the etiology of sympathetic ophthalmia. *Oftalmologicky Sbornik*, 1928, v. 2, p. 577.

The author attempted to inoculate eyes of rabbits with sympathetic ophthalmia by implanting between the sclera and ciliary body, and into the scarified cornea, tissue from a human eye, proved histologically to be affected with sympathetic ophthalmia. The results were negative.

Ray K. Daily.

Vasek, E. Cases of sympathetic ophthalmia observed in the ophthalmic section of the general hospital in Plzen in the last six years. *Oftalmologicky Sbornik*, 1928, v. 2, p. 275.

The author reports five cases of sympathetic ophthalmia, one of which occurred following a cataract extraction. The extraction was performed on December 7, 1925. On the 8th of January, both eyes became inflamed. The operated eye developed a plastic inflammation, the sympathizing eye a serous. On April 8, the blind operated eye was enucleated. There was no improvement in the sympathizing eye until omnadin was administered intramuscularly. The patient was discharged with vision 5/35. In the next case, however, omnadin was without effect.

Ray K. Daily.

Wahrer, F. L. Eye disorders of nasal origin. *Jour. Iowa State Med. Soc.*, 1928, v. 18, Nov., p. 417.

The author apparently agrees with Holmes that about forty per cent of all eye diseases are due to nasal infection. Diseases of the anterior sinuses cause affections of the bulb, while those of the posterior group cause optic neuritis. Optic neuritis is generally secondary to chronic sinus disease, while orbital cellulitis is usually due to acute sinus infection. Pressure is one of the main factors in retrobulbar neuritis of nasal origin. Enlargement of the blind spot was found in twenty-five per cent of the cases of posterior ethmoid and sphen-

oid disease. In pressure cases atrophy can occur in fifteen to twenty days. In every case of optic neuritis of nasal origin the ethmoid-sphenoid group must be drained without delay. (Six case reports. Discussion.)

George H. Stine.

8. GLAUCOMA AND OCULAR TENSION

Cosmettatos, G. F. Genesis of hydrophthalmos. *Ann. d'Ocul.*, 1928, Oct., v. 165, pp. 752-770.

See editorial, January issue, page 50.

Gala, A., and Melkar, M. J. Relation between actual blood reaction and intraocular tension in pathogenesis of glaucoma. *Oftalmologicky Sbornik*, 1928, v. 2, p. 247.

The author gives a tabulated report of fifteen cases of inflammatory glaucoma, three of primary simple glaucoma, two of juvenile glaucoma, two of glaucoma secondary to iridocyclitis, and nineteen cases of various eye diseases with normal tension in which he measured the pH content of the blood according to the method of Hasselbach. He found the pH about the same in the glaucomatous and nonglaucomatous cases, except in one case of glaucoma with low tension, where the pH was raised. There was never any relation between the pH of the blood and the introcular tension. He concludes, therefore, that the alkalinity of the blood is not an etiologic factor in glaucoma.

Ray K. Daily.

Gifford, S. R. Some modern preparations used in the treatment of glaucoma. *Arch. of Ophth.*, 1928, v. 57, Nov., pp. 612-627.

In a most interesting way this author reviews the effects produced by the more recent drugs used in glaucoma. He first discusses adrenalin and glaucosan in considerable detail. Afterward amin-glaucosan is referred to, as it is a powerful miotic, but the painfulness of the treatment renders

it somewhat unsatisfactory. Hypertonic solutions of sodium chloride have been used with considerable success, by some in ten per cent solution and by others in thirty per cent solution, in intravenous injections. Tyramin and barium are referred to briefly. Ergotamin appeals more to the author and apparently has produced good results in subcutaneous injections of 0.00025 gm., or by oral administration of three tablets of 0.001 gm. Pituitrin acts nicely in some cases by subconjunctival injections of from 0.3 to 0.5 c.c. In summary the author feels that clinical reports are still too meager to form definite judgments with regard to most of these drugs. In the use of adrenalin or glaucosan the danger of producing acute glaucoma must be borne in mind, especially where acute inflammation is present. Inflammation and chemosis result from aminoglaucosan to a troublesome extent. Adrenalin is of value in simple glaucoma in conjunction with miotics, especially for delaying operation. Intravenous injections of salt solution are valuable before operation. Ergotamin appeals especially as a safe and valuable drug. The other procedures are still in the experimental stage. A valuable bibliography accompanies the article. *M. H. Post.*

Herold, K. Glaucosan treatment of glaucoma. *Oftalmologicky Sbornik*, 1928, v. 2, p. 481.

The author reports the following results after the use of glaucosan in twenty-one eyes with raised intraocular tension. In ten cases of simple chronic glaucoma, in three cases of hemorrhagic glaucoma, and in three cases of glaucoma secondary to iridocyclitis, the diminution of tension was very slight and of short duration. In three cases of simple glaucoma the tension was reduced to normal and was kept so by miotics which previously had had no effect. Two cases of iridocyclitis with high tension were cured. In two cases the instillation

of glaucosan was followed by a glaucomatous attack, which in one case was controlled by aminoglaucosan and in the other required surgical intervention.

Ray K. Daily.

Kadlicky, R. Change in the actual blood reaction after injections of insulin in patients with normal and glaucomatous eyes. *Oftalmologicky Sbornik*, 1928, v. 2, p. 261.

The author records the changes in the actual reaction of the blood and the changes in intraocular tension following the administration of insulin in a series of seventeen glaucomatous eyes and twenty eyes with normal tension. In one case of glaucoma the blood reaction showed an uncompensated lack of carbon dioxide. Two glaucoma cases and two cases of normal tension had a blood reaction with an uncompensated surplus of carbon dioxide, and the rest had normal reactions. After administration of insulin the alterations in the blood reaction manifested no considerable difference in the two groups, nor were the changes in the ocular tension uniform or consistent. The author is of the opinion that these findings repudiate Meesmann's theory of the relation of blood alkalinity to glaucoma.

Ray K. Daily.

Schenck, C. P. Glaucoma in myopia. *Texas State Jour. of Med.*, 1928, v. 24, May, pp. 36-39.

The author comments upon the rarity of glaucoma in myopia and discusses the various theories which attempt to explain this fact. Two cases are reported, encountered during seventeen years of ophthalmic practice.

P. Thygeson.

9. CRYSTALLINE LENS

De Saint Martin. Adrenalin mydriasis in cataract operations. *Ann. d'Ocul.*, 1928, Oct., v. 165, pp. 743-747.

After pointing out the well known fact that adrenalin mydriasis persists even after opening the anterior cham-

ber in contradistinction to atropin and euphalmin dilatation, the author states the advantages and disadvantages of adrenalin. He thinks the latter are more imaginary than real, but strongly advocates the use of anesthesia for the orbicularis, corneal sutures, and peripheral iridectomy when adrenalin is used. He cites fifty cases in which he has used this procedure.

L. T. Post.

Goldfeder, A. E. *Cataracta punctiformis (congenita?), erroneously considered as incipient glassblower's cataract.* Russkii Opht. Jour., 1928, Sept., pp. 346-360.

Transillumination of the pupil with an ophthalmoscope and a ten diopter lens held in front of the eye revealed in 2.3 per cent of 1,583 workers of various trades a punctiform lenticular opacity situated in the upper nasal part of the posterior cortical layer. This cataract is congenital, and does not interfere with visual acuity. When observed in glass-workers, it has many times been mistaken for a "ray" cataract.

M. Beigelman.

Knapp, Arnold. *On an operation for shrunken cataracts in adolescents.* Arch. of Ophth., 1928, v. 57, Nov., pp. 594-596.

In this brief paper the author recommends that in small, shrunken congenital cataracts, where synechiaæ have formed between the lens and the iris, the cornea be opened by a keratome, the point of which also opens the capsule. This latter perforation is enlarged by lateral incisions causing prolapse of the vitreous into the anterior chamber and dilatation of the pupil. Then the adhesion between the capsule and iris is divided by de Wecker capsule forceps scissors. The shrunken cataract is seized with the blunt capsule forceps of Kalt, or the Liebreich as modified by Panas, the sharp blade being introduced into the vitreous beneath the cataract, and it is gently drawn out of the eye. If

the vitreous presents it should be excised.

M. H. Post.

Leser, O. *Kalt's capsule forceps used in the extraction of senile cataracts.* Oftalmologicky Sbornik, 1928, v. 2, p. 567.

In the ophthalmologic clinic in Prague the author used the Kalt forceps in ninety cases of senile cataract extraction. In seventeen, he used retrobulbar ganglion anesthesia; in the rest, local anesthesia. In twenty-two cases he extracted the entire lens with the forceps. A drop of vitreous followed in four cases. Four operations were performed without iridectomy, eight with peripheral and ten with total iridectomy. In sixty-five cases he removed with the forceps the anterior capsule and sometimes also part of the posterior capsule. Five operations were without iridectomy, twenty-three with peripheral and thirty-seven with total iridectomy. In six cases there was some loss of vitreous; in two cases the lens had to be removed with the Snellen loupe; in three cases it was impossible to seize the lens capsule with the forceps. Most of the cataracts were nuclear or supranuclear, and several capsular. The author was impressed with the rapid development of vision after the operation and highly recommends the procedure.

Ray K. Daily.

Paul, L. *Prophylactic corneal suture in cataract operations.* Klin. M. f. Augenh., 1928, v. 81, July, pp. 87-92. (5 ill.)

Paul describes in detail his method of applying a corneal suture in cataract operation.

C. Zimmermann.

Szily, A. *Congenital familial ring-shaped cataract, with remarks on its origin.* Klin. M. f. Augenh., 1928, v. 81, Aug.-Sept., pp. 145-164. (5 col. pl., 7 ill.)

Four children of the same family showed a complete axial defect of the lens. The lens had the shape of a closed ring; it was of the normal

diameter and reduced thickness. The central defect, of the diameter of the embryonic nucleus, was not an open hole, but was closed by a fine membrane similar to secondary cataract, consisting of epithelium, capsule, and axial heaps of cells, which occupied the place of the nucleus. Anatomical examination of the lens of a trout embryo of eight millimeters length, and of the lens of a rabbit embryo aged sixteen days, showed the shape of a ring with an axial cylindrical conglomeration of cells, due to malformation of the embryonic lens. This suggests that the ring-shaped cataract is due to aplasia of the axial portion of the lens including the embryonic nucleus.

C. Zimmermann.

10. RETINA AND VITREOUS

Cavka, Vladimir. **Contributions to exudative retinal affections.** Klin. M. f. Augenh., 1928, v. 81, July, pp. 3-41. (2 ill.)

Two cases are reported. The right eye of a man aged twenty-nine years showed the typical picture of angiomas retinæ, dilatation (ten times) of the upper temporal papillary vein, yellowish-green infiltration of the peripapillary tissue, numerous cholesterol crystals, and choked disc. This last is a very important symptom, because retinal angiomas often leads to formation of tumors in the brain and medulla (about twenty per cent of the cases). The left eye showed less abundant changes, but these included hemorrhages at the periphery and infiltrations at the macula, i.e., the changes of a later stage. The second case, in a boy aged eleven years, was interpreted as exudative retinitis. The fundus presented white exudates covering the vessels, a large yellowish-white mass at the temporal side of the disc, and miliary aneurisms. There was suspicion of tuberculosis.

C. Zimmermann.

De Schweinitz, George E. **Senile macular disease.** Atlantic Med. Jour., 1928, v. 31, Aug., p. 818.

De Schweinitz divides senile macular disease into four groups. Group I shows the macular area to be darker than normal, having a faintly muddy hue or delicate mottling. Close focusing reveals a number of brownish black granules interspersed with others which are light-colored. Group II shows small yellowish white spots interspersed with pigment dots and minute hemorrhages, or irregular shallow erosions, which may go on to atrophy of the elements and slight pigment heaping. The term "moth-eaten macula" has been applied to this type. Group III is uncommon and is characterized by a round or slightly oval "hole" about one-half the size of the disk, with sharply marked edges, the margin being slightly gray or greenish. The lesion is depressed, its bottom being of dark red color and stippled with white and red spots. This lesion may be induced by trauma, iridocyclitis, uveitis, neuroretinitis, and so on, but occurs quite rarely as a senile macular change due to arteriosclerosis. Group IV is characterized by a heaped-up area of grayish or greenish exudates at the posterior pole in association with recurring hemorrhages. The author discusses the symptoms, diagnosis, pathology, and treatment, stressing his belief in the efficacy of dionin and citing five cases in which improvement followed the use of this drug.

P. Thygeson.

Liebitzky, H. **Trichotomy of normal retinal vessels.** Klin. M. f. Augenh., 1928, v. 81, July, pp. 42-44. (5 ill.)

Five cases are described, with trichotomy of arteries and veins in one eye of each. It occurs more frequently than mentioned in literature, but is without special significance.

C. Zimmermann.

Mann, Ida C. **The relations of the hyaloid canal in the fetus and in the adult.** Jour. of Anatomy, 1928, v. 62, April, pp. 290-296.

The conclusions of the author are that biomicroscopy has demonstrated the persistence of Cloquet's canal as an anatomical structure throughout life; that the median position does not hold if the body is erect and that this position varies with posture; and finally that a minimal persistence of the dental end of the hyaloid artery is normal in man.

L. T. Post.

Schweig, S. J. **Coincidence of persisting glial sheath of the hyaloid artery with other hereditary ocular anomalies.** *Klin. M. f. Augenh.*, 1928, v. 81, July, pp. 59-60.

The father of a family in which hereditary ptosis, atresia of the lacrimal ducts, and lack of rectus externus occurred presented in his left, amaurotic eye a thick greyish-white process projecting into the vitreous about ten diopters, from which white firm filaments radiated. A thinner strand proceeded farther forward without reaching the lens. The lens showed a circular line of points to the nasal side from the posterior pole.

C. Zimmermann.

11. OPTIC NERVE AND TOXIC AMBLYOPIAS

Berens, C., Smith, H. T., and Cornwall, L. H. **Fundus and retinal arterial blood pressure changes in increased intracranial pressure.** *Arch. of Neurol. and Psych.*, 1928, v. 20, Dec., pp. 1151-1171.

If brain tumor is suspected a study of the retinal arterial blood pressure after the method of Bailliart is valuable if choked disc has not yet been established. Edema best explains choked disc. Changes in posture will cause marked variations in retinal arterial pressure. Positive fundus findings in suspected increase of intracranial pressure are of great import, but negative findings without knowledge of the retinal arterial pressure mean nothing.

L. T. Post.

Havel, J. **Treatment of optic nerve atrophy by means of malaria.** *Ofthalmologicky Sbornik*, 1928, v. 2, p. 461.

The author gives a tabulated report on sixteen cases of tabetic optic atrophy treated with malarial inoculations. This is done by intravenous injections of five c.c. of blood from a patient having a malarial paroxysm. The patients were permitted to have eight to twelve malarial paroxysms, after which the disease was checked by means of quinine. In nine cases thus treated the disease progressed; central vision was diminished and the visual fields contracted further; in seven cases the condition remained unchanged.

Ray K. Daily.

Slavik, B. **Tuberculous inflammations of the optic nerves.** *Ofthalmologicky Sbornik*, 1928, v. 2, p. 341.

The author calls attention to the difficulty of making a diagnosis, and the statement seen in literature that optic neuritis of tuberculous origin responds rapidly to tuberculin treatment. Of ten cases of optic neuritis treated with success with tuberculin, he considers four of tuberculous etiology; including two of neuroretinitis with the star figure in the macular region, one of papillitis and one of retrobulbar neuritis. In the last case, during the treatment there occurred a transient nodular infiltration of the papilla and adjoining retina. Of the other six cases, in two the etiology was uncertain, two were associated with intranasal disease, and two with multiple sclerosis.

Ray K. Daily.

Van Wagenen, W. P. **Incidence of intracranial tumors without "choked disk".** *Amer. Jour. Med. Sciences*, 1928, v. 76, Sept., p. 346.

Van Wagenen studied 365 cases, diagnosed clinically as brain tumor, and of which 145 were histologically verified at operation or autopsy. Of the 145 verified cases, 11.7 per cent failed to show choked disk at the time of hospital admission. When pituitary adenomas, congenital cysts, and suprasellar meningiomas were excluded, the percentage rose to 16.5.

The author concludes that failure of the disks to undergo choking does not indicate the absence of increased intracranial pressure, for in fifty per cent of the cases reported there was evidence of this either at operation or by roentgen-ray examination.

P. Thygeson.

Wiener, Meyer. Correction of defect due to third nerve paralysis. *Arch. of Ophth.*, 1928, v. 57, Nov., pp. 597-601.

In two patients the author transplanted the superior oblique to the globe at the upper margin of the insertion of a paralyzed internal rectus. The trochlea is incised so as to remove the muscle tendon from passage through it and one inch of the tendon is excised. According to the author the technique is simpler than would appear and the results have been very fair.

The operation was suggested by Edward Jackson and Dransart, the latter of whom has carried it out on a living subject. Jackson has frequently done it on a cadaver, but has reported no cases tried on a living patient.

M. H. Post.

Wurz, R. Treatment of optic atrophy with typhoid vaccine. *Oftalmologicky Sbornik*, 1928, v. 2, p. 353.

At the ophthalmic clinic of the university of Brno, seven cases of tabetic optic atrophy were treated with intravenous injections of typhoid vaccine. The course of treatment consisted of twelve injections at two or three-day intervals, beginning with doses of twenty-five to thirty millions and gradually increasing to eight hundred millions. The progress of the disease was checked in five cases and no further rapid diminution of vision occurred; in most of the cases vision was limited to the counting of fingers at several meters. In one case of complete amaurosis the injections gave no result; there was improvement of vision in one case. There are no contraindications to this treatment and it

is particularly indicated in cases complicated with aortitis in which malarial treatment is inadvisable.

Ray K. Daily.

12. VISUAL TRACTS AND CENTERS

Fulton, J. F. Vascularity of human occipital lobe during visual activity. *Brain*, 1928, v. 51, part 3, pp. 310-320.

Observations on a patient who had in the left occipital visual cortex a circumscribed angioma arteriale racemosum, which had produced an incomplete homonymous hemianopsia, showed a marked increase of the bruit heard over the tumor at such times as the patient used his vision. No blood pressure or other changes during the test were noted. The tumor also swelled and the process within it was considered an increased vascularization.

L. T. Post.

MacGillivray, A. M. Functional diplopia in a school boy. *Brit. Jour. Ophth.*, 1928, v. 12, Nov., p. 588.

During the preceding six months an intelligent boy aged eight years had experienced periodic attacks of double vision. When asked to read letters and figures with either eye, separately or combined, each letter, figure, or word was read twice, each said to be standing clearly alongside the other without overlapping. There was no wordblindness. Malingering was eliminated by searching tests. There was no discoverable pathology. Vision was normal. Examination six weeks and one year later showed no recurrence of the trouble. The reporter was unable to determine what had suggested the symptom to the child.

D. F. Harbridge.

13. EYEBALL AND ORBIT

Birley, J. L. Traumatic aneurism of the intracranial portion of the internal carotid. *Brain*, 1928, v. 51, part 2, p. 184.

Birley reports a case of basal skull fracture complicated by aneurism of the intracranial portion of the right in-

ternal carotid artery and followed by several almost fatal hemorrhages through the sphenoid sinus. Ligature of the right internal and external carotid vessels just above the bifurcation was followed by complete restoration of mental and bodily health. An excellent discussion of the diagnostic points in the case and of the effect of obstruction of the carotid circulation on the homolateral eye is given. Review of the literature failed to reveal any example of injury to the intracranial carotid apart from those with which were immediately fatal or those which were productive of pulsating exophthalmos. *P. Thygeson.*

Goerlitz, Martin. **Relapsing exophthalmus accompanying empyema of the frontal sinus, with formation of folds in the retina.** *Klin. M. f. Augenh.*, 1928, v. 81, July, pp. 12-25. (3 ill.)

A man aged forty-three years stated that nine months earlier after a severe asthmatic attack in the night, his left eye had suddenly bulged out, but after a week had receded spontaneously to its normal position. This recurred several times. From the anamnesis and roentgen examination the affection was regarded as due to chronic empyema of the frontal sinus. Through a defect in the floor of the left frontal sinus its increased contents, encapsulated under the mucous membrane without perforation of the periosteum, bulged into the orbit and caused exophthalmus. The lower margin of the disc was solid, and from it to the temporal side of the macula a series of fine light lines were visible. These are explained as folds of the retina, produced by pressure of the tumor on the eyeball and by edema from disturbance of circulation. Operation revealed extensive empyema and granulations of the frontal, ethmoidal, and sphenoidal sinuses, and effected a perfect recovery. *C. Zimmermann.*

Golowin, S. S. **On so-called blood cysts of the orbit.** *Klin. M. f. Augenh.*, 1928, v. 81, July, pp. 1-19. (7 ill.)

According to Golowin, different diseases may give the aspect of hematogenous cysts of the orbit. Three types may be distinguished, for each of which an illustrative case is described. (1) A girl aged twelve years, on awakening three weeks previously, suddenly noticed a swelling in the nasal half of the left lower lid, with slight exophthalmus and blue discoloration of the skin. A typical cyst with a solid capsule adherent to the periosteum on the nasal side, but otherwise free in the orbital tissue, was removed. The capsule was devoid of epithelium, and the cyst was filled with partly degenerated erythrocytes, indicating that it was an encapsulated hemorrhage.

The second patient, a woman aged twenty-seven years, for ten years had intermittent exophthalmus of the right eye of various degrees, and atrophy of the orbital tissue. The exophthalmus became more intense, there was congestion of the disc, and a tumor became visible in the temporal portion of the orbit. This was removed by Golowin's osseous orbitotomy. Apparently it was a dermoid cyst containing erythrocytes, leukocytes, and cholesterol. Repeated hemorrhages into its interior and their partial absorption explained the variability of the exophthalmus.

The third case was in a man aged forty-three years, who showed hemorrhages into a melanoma of the right orbit.

C. Zimmermann.

Kurz, J. **Diprosopus triophthalmos in a cat.** *Oftalmologicky Sbornik*, 1928, v. 2, p. 425.

The article contains a histologic description of a median cyclopic eye in a cat which had also two lateral eyes. The author mentions briefly the various theoretical factors, none of which have been definitely established, of the causation of this malformation.

Ray K. Daily.

Majewski, J. W. Epicorneal conjunctivoplasty for epiprosthesis. Arch. d'Opht., 1928, v. 45, Nov., p. 673.

After a brief review of the unsatisfactory features of the various stumps used for artificial eyes, a technique is described for the use of a shrunken eye itself as a base over which to place the prosthesis. The conditions necessary before one can wear a prosthesis over one's own eye are first, that the eye be partly shrunken to give room for the prosthesis; second, that the eye be not inflamed and not sensitive to touch; and third, that a normal sensitive cornea be not present. When the cornea is normal the epithelium is curetted away and its surface scarified, then a conjunctival flap is brought down from above and up from below with considerable over-lappage at the center of the cornea. Several sutures are placed after scarifying the surfaces of contact. After twelve days the sutures are removed, and in another six days an artificial eye is made to fit over the shrunken globe. Motility is much better than by the use of any other stump and the prosthesis is well tolerated by the conjunctiva-covered cornea. This method gives a better cosmetic effect in blind eyes than by tattooing the cornea.

M. F. Weymann.

Pines, B. Inflammatory pseudotumor of both orbits. Klin. Oczna, 1928, July, pp. 116-119.

In a case of pronounced bilateral exophthalmos with complete loss of sight on one side and some contraction of the field of vision on the other, a biopsy of the retrobulbar tumor mass was performed. The microscopic examination revealed areas of round-cell infiltration with predominance of plasma cells, situated mostly near blood vessels, and some vascular changes in the form of periarteritis and endarteritis. No suggestion concerning the etiology of this condition could be found from complete general examination of the patient. *M. Beigelman.*

Vejdovsky, V. Orbital circumscribed cystic fibrous osteitis. Oftalmologicky Sbornik, 1928, v. 2, p. 455.

The patient, a man thirty-four years of age, noticed an epiphora of the right eye and three months later presented himself to the clinic with a flat semifirm tumor the size of a walnut in the region of the lacrimal gland, adherent to the bone, not connected with the eyeball, but pushing it out. A diagnosis was made roentgenologically and confirmed histologically after operation. (X-ray prints are attached to the article.) *Ray K. Daily.*

Wheeler, John M. Pulsating exophthalmos. Atlantic Med. Jour., 1928, v. 31, Aug., p. 812.

Wheeler reports completely a series of cases of pulsating exophthalmos and emphasizes the dangers of complete ligation of the common carotid. He suggests preliminary digital compression followed by incomplete blocking of the artery on the affected side and later complete blocking with section. If further relief is necessary, in a few weeks the second common carotid may be treated in a similar way, or if the bruit is localized in the region of the superior ophthalmic vein this should be ligated in preference to the second common carotid.

P. Thygeson.

14. EYELIDS AND LACRIMAL APPARATUS

Komura, K. Circumscribed gumma of the prelacrimal region. Klin. M. f. Augenh., 1928, v. 81, July, pp. 92-95. (1 ill.)

Komura observed a hard nodular tumor in the left prelacrimal region of a man aged thirty-nine years, with intense positive Wassermann reaction. Under antiluetic treatment the growth commenced to become softer on the fifth day and almost entirely disappeared after a month, leaving a thickening of the bone in the frontal process of the superior maxilla.

C. Zimmermann.

NEWS ITEMS

News items in this issue were received from Drs. H. Alexander Brown, San Francisco; C. A. Clapp, Baltimore; George H. Kress, Los Angeles; R. J. Masters, Indianapolis; James M. Patton, Omaha; and Charles P. Small, Chicago. News items should reach Dr. Melville Black, Metropolitan Building, Denver, by the twelfth of the month.

Deaths

Dr. Arthur Eugene Ewing, emeritus professor of ophthalmology at Washington University, Saint Louis, died suddenly on January twenty-sixth, aged seventy-three years.

Dr. W. C. McMurry, aged forty-four years, died suddenly in San Francisco on December seventh.

Professor Hubert Sattler of Leipzig died recently.

Dr. Lewis H. Taylor, Wilkes-Barre, Pennsylvania, aged seventy-eight, died November fifth of coronary occlusion. He was at one time chairman of the ophthalmological section of the American Medical Association.

Dr. Thomas C. Hood, Indianapolis, died January second, 1929, at the age of sixty-eight. Dr. Hood was one of the oldest and best known Indiana oculists. A professor emeritus of ophthalmology in the Indiana University School of Medicine, one of the early members of the American Academy, and a fellow of the American College of Surgeons, he had earned and held the esteem of his fellow physicians, of his city and state, throughout forty years of active practice. He had held many offices in the city and state organizations, having served only last year as president of the Indianapolis Ophthalmological and Otolaryngological Society.

Miscellaneous

Under the will of the late Mr. George C. Halley, of Albany, the Albany Association for the Blind was left \$50,000.

Under the will of the late Mrs. Anne E. Kane, the New York Eye Infirmary and the New York Institution for the Blind were each bequeathed \$25,000.

The optometrists are sponsoring a bill to prevent the sale of glasses over the counter in stores. This is especially aimed at the trade in glasses in the five and ten cent stores.

The Denver public schools are establishing a conservation of vision class. It is estimated that among 45,000 pupils there will be forty-five for the special class.

There is much agitation at the present time to introduce a bill in the Maryland state legislature which would require doctors to use a prophylactic against ophthalmia neonatorum at time of delivery. Under the present law such requirement applies only to midwives.

The late Dr. Frank A. Morrison, Indianapolis, willed to the Indiana University school of medicine more than four hundred books, periodicals, and instruments, which

will form the nucleus of a special library at Indianapolis to be known as the Frank A. Morrison Ophthalmological Library. Some of the books are historic first editions.

Schools for the blind—A report prepared by the U. S. Department of the Interior covers eighty schools and institutions for the blind for the year 1926-1927. Forty-seven are state institutions, twenty-one are schools or classes in city school systems, five are private institutions supported partly by state funds, and one is a school in the Philippine Islands and one a school in Porto Rico. The total enrolment in these schools for 1927 was 6,084; 2,729 were girls. The total enrolment is an increase of 22 per cent over the enrolment of the year 1918. These schools had a total of 863 instructors, of whom 643 were women. Of the total number of pupils, 3,499 were enrolled in industrial courses, 2,729 were given vocal culture, and 2,688 pupils were enrolled in instrumental music classes. The graduates from the high school departments numbered 177. There were 336 pupils in the kindergarten departments of these schools for the blind. The total expenditure in the sixty-seven institutions for the year was \$3,993,404. Schools which offer courses for teachers of blind children are Perkins Institute, Watertown, Massachusetts; Pennsylvania Institute for the Instruction of the Blind, Overbrook, Pennsylvania (course for prospective home teachers of the blind), and George Peabody College for Teachers, Nashville, Tennessee, which gives special courses during the summer for teachers of the blind and semisighted. (Jour. Amer. Med Assoc.)

The November, 1928, issue of the *Archives d'Ophthalmologie* contains an abundance of detail as to the courses of study to be given during the winter of 1928 and 1929 and the summer of 1929 at the Clinique Ophthalmologique (Hotel-Dieu) Paris. A special postgraduate course, (cours de perfectionnement) will be given during May and June by Professor Terrien assisted by Velter, Zimmern, and a number of others. A further vacation course will be given in surgical technique during September and October, 1929, by Professor Terrien and his associates.

At the clinic of the university of Jena a "spectacle course" will be given from March 4 to 8 inclusive, 1929. The course will be conducted by Professor Erggelet, Professor Löhlein, Professor Rohr, and others.

A publisher's map on the back cover of the *Acta Ophthalmologica* (Copenhagen),

designed to show the major points all over the world which are reached by the firm's various medical journals, contains some curious geography. Atlanta is shown northwest of New Orleans, Baltimore west of Philadelphia, Toronto about as far west as Glacier National Park, New Haven between "Iowa" and Omaha, Syracuse Springfield and "Kansas" west of Denver, and San Domingo on the coast of southern California.

Those desiring to take the examination of the American Board for Ophthalmic Examinations, or of the American Board of Otolaryngology, in Portland, Oregon, on July 8, during the session of the American Medical Association, or in Philadelphia in October, prior to the meeting of the American Academy of Ophthalmology and Otolaryngology in Atlantic City, should communicate with Dr. W. H. Wilder, 122 South Michigan Avenue, Chicago, as regards the ophthalmic, or with Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, as regards the otolaryngologic board.

Societies

The Minnesota Academy of Ophthalmology and Oto-laryngology was addressed in December, at Minneapolis, by Dr. George F. Suker, Chicago, on "Lesions of the visual pathway", illustrated with specimens.

The eye staff of the Cook County Hospital held a "fundus clinic" under the auspices of the Chicago Ophthalmological Society December seventh. The society listened to a symposium on optic neuritis December seventeenth. The speakers were Drs. Wm. H. Wilder, Norval H. Pierce, and Lewis J. Pollock. Dr. James E. Leboensohn spoke on "an oculogastric reflex experimentally demonstrated".

The eye, ear, nose, and throat section of the Douglas County Medical Society is now meeting in the executive offices of the association in the Medical Arts Building, Omaha, on the third Wednesday afternoon and evening of each month. Cases are reported and discussed during the early part of the meeting, with a regular scientific program after dinner. The January meeting was addressed by Dr. H. P. Wagner of Rochester, Minnesota, who talked on angiiosclerotic changes in the retina. Visiting eye, ear, nose, and throat men are invited to attend the meetings.

The Indiana Academy of Ophthalmology and Oto-laryngology held its annual meeting in Indianapolis, December 12 and 13, under the presidency of Dr. C. H. McCaskey. Those taking part in the eye program were Drs. J. A. MacDonald, Indianapolis; C. H. Richards, Vincennes; D. A. Bartley, Indianapolis; B. D. Ravidin, Evansville. The guest of honor was Dr. Horace Newhart of Minneapolis.

The annual dinner of the eye and ear sec-

tion of the Los Angeles County Medical Society was held at the University Club on January seventh, 1929. Officers elected for the coming year are: Drs. H. S. Muckleston, president; M. F. Weymann, vice-president; Frank Friesen, secretary-treasurer. A committee with Dr. Isaac Jones as chairman was appointed for the organization of a study club for the ensuing year.

Personals

Dr. Reginald West, of Baltimore, has been taking a short vacation in Cuba.

Dr. John C. Williams will be associated with Dr. H. Alexander Brown, of San Francisco, in the practice of ophthalmology.

Dr. and Mrs. George Frothingham, of Detroit, have returned from a motor trip to Washington.

Dr. and Mrs. Raymond J. Sisson, of Detroit, are in Palm Beach, Florida, for the winter.

Dr. L. L. Herriman, Alamosa, Colorado, spent the holidays with relatives and friends in Omaha and Rochester.

Dr. Cassius D. Wescott of Chicago planned to leave in January for a Mediterranean trip, and to be gone about two months.

Dr. Hallard Beard, who has been working in the Vienna clinics for the past three months, has returned to Chicago to resume his practice.

Dr. W. Whitehead Gilfillan retired January first as visiting ophthalmologist at the New York City Hospital department of welfare, after thirty years of service.

Dr. Albert E. Bulson, Jr., Fort Wayne, was elected president of the Indiana Academy of Ophthalmology and Otolaryngology at the twelfth annual meeting in Indianapolis, December thirteenth.

Dr. J. V. Ellegood of Wilmington, Delaware, is retiring from practice because of failing health.

Dr. Casey A. Wood has just completed a translation from the Latin of the first printed book on the eye, Benvenuto Grassi's "De Oculis", published in 1474. Dr. and Mrs. Wood will sail from San Francisco for England, via the Panama Canal, on March twentieth. Dr. Wood has some work he wants to do at Oxford. He has no definite time set for a return to this country.

Dr. James A. Spalding of Portland, Maine, having been in active practice since 1870, may be regarded as the dean of the ophthalmological profession of this country. He is now in his eighty-third year, and for many years has been regarded as one of the foremost ophthalmologists of New England. In addition to his practice he still continues his active interest in ophthalmic literature. He has indexed all the volumes of the "Archives of Ophthalmology" from the foundation of that journal to the present time.